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The Newspaper of the Industry

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THE COLD CANVASS

By B. T. Umor

Substitution: Yale For Columbia

Old B. T. U. was interested in the editor's report from Washington that the Columbia braintrusters seem to have been supplanted down in Washington by men from Yale.

Mebbe no conclusion can be drawn from this observation, although it does seem apparent that the President has been getting better advice recently.

Some of us would feel a lot better if more members of the White House cogitating circle were drawn from, say, Purdue and M.I.T., Illinois and Ohio State, Duke and North Carolina, Drake and Nebraska.

Incidentally, it's interesting to notice that several members of the important Temporary National Economic Committee come from the steer-roping and ten-gallon-hat country.

O'Mahoney is from Wyoming. Borah, from Idaho. King, from Utah. Douglas came out of Arizona. Arnold was once mayor of Laramie. Henderson isn't a westerner, but he looks, talks, and acts like one.

(Concluded on Page 2, Column 5)

Hotels Big Boon To Room Cooler Sales

SYRACUSE, N. Y.—Outstanding development of 1938 in the room cooler field has been the widespread use of this type of equipment in hotels, say executives of Carrier Corp. here. Hotel managers have found that self-contained conditioners provide the benefits of air conditioning without delay, and without necessitating changes in the building construction.

Rooms which were previously nonrentable or undesirable are now being occupied in many hotels, after the installation of room coolers, it is reported. In a number of cases, installation of these units in a few rooms has led to air conditioning the entire hotel.

The St. James hotel, Philadelphia, installed room coolers in a number

(Concluded on Page 7, Column 1)

Universal Cooler '39 Line Has 2 'Leader' Models

Meat Conserver Feature On All Units; 3 Deluxe Models

DETROIT—Five models, two of them designed as low-priced "leaders" for promotional selling and the other three being more fully equipped deluxe units, comprise Universal Cooler Corp.'s household electric refrigerator line for 1939, announced last week by William H. Dennison, manager of domestic sales for the company.

The so-called "Master" units of the leader line include a 4 and 6-cu. ft. model. Featured number of this series is Model 639, which is said to be entirely new in both interior and

(Concluded on Page 9, Column 5)

22-Store Retail Chain Planned In Chicago

CHICAGO—Twenty-two appliance and radio shops will be operated in the Chicago area this year by Good Housekeeping Shops, new corporation which has taken over the six Levinson Radio Stores here, declares Julius Levinson, vice president of the new organization and former head of the Levinson chain.

In addition, the company intends to contract with a number of appliance dealers in suburban and smaller

(Concluded on Page 9, Column 4)

Hancock Will Direct All McCord Sales

DETROIT—Promotion of William G. Hancock to the position of general sales manager of McCord Radiator & Mfg. Co., directing sales in all departments, has been announced by P. L. Barter, vice president of the company. The appointment was effective Jan. 1.

Mr. Hancock, associated with McCord Radiator & Mfg. Co. for 20 years, heretofore has been sales manager of the company's automotive parts department.

J. L. Shrode, Head Of Alco, Pioneer In Industry, Dies

ST. LOUIS—John L. Shrode, founder and president of the Alco Valve Co., manufacturer of automatic control equipment, died Saturday morning, Dec. 31, from a cerebral hemorrhage.

Mr. Shrode was 58 years of age. Funeral services were held Jan. 2.

In addition to founding and heading one of the earliest companies in the industry to manufacture automatic control devices, Mr. Shrode was well known as a leader in industry association affairs and cooperative activities. He was a member of the nominations committee of the Refrigeration Supplies and Parts Manufacturers Association, and also was a member of the association's steering committee in charge of the All-Industry Exhibition to be held this month.

He was a past president of the St. Louis section of the American So-

(Concluded on Page 16, Column 3)

Stokers, Health Aspects Head ASHVE Topics

PITTSBURGH—Air conditioning in industry as related to the health of workers, physiological sensations of comfort, and broad discussions of solid fuels and automatic stokers will be the main topics of papers to be presented at the forty-fifth annual meeting of the American Society of Heating & Ventilating Engineers at the William Penn hotel here Jan. 23-26, 1939.

The following papers will be included in the technical program:

"Recent Advances in Physiological Knowledge and Their Bearing on Ventilating Practice," by C. E. A.

(Concluded on Page 7, Column 3)

IN THIS ISSUE

Selling electric water heaters by showing prospects they can "write off" their investments through extra savings is the plan of a New Haven salesman. On page 2.

Radio and phonograph sales increased when prospects found the listening booth in a Baltimore store was air conditioned. Story of "comfort lure" is on page 2.

A brand new market for air conditioning may be opened up by the storage room experiment of a Denver florist. Success story of new type of air-cooled flower storage room has valuable hints for installation men on page 5.

Latest news on All-Industry Exhibition. Clip convenient "convention map" of Stevens hotel Exhibition Hall floor plan on page 10 and have the who and where of products and companies at the show.

Service men—continue Black & Seitz series on soda fountain methods. Expert information on "three-boiler" fountain gives instructions for servicing. On page 11. Also read on page 13 advice of Mills Novelty Co. engineer on servicing of ice cream cabinets.

Characteristics of metal and asbestos ducts for air-conditioning systems determined by Mellon Institute. Page 14.

Burstein-Applebee Quits Refrigeration Field

KANSAS CITY, Mo.—Burstein-Applebee Co. has withdrawn from the refrigeration parts and supplies jobbing business and has sold its complete inventory of this equipment to Forslund Pump & Machinery Co., another Kansas City parts jobber, reports M. W. Applebee.

Sale of its refrigeration department, however, in no way affects the

(Concluded on Page 16, Column 2)

'39 Kelvinators Have Improved Unit & 'Functional' Cabinets

* * *

'High Speed' Freezer & 'Open Throat' Front Other Innovations

DETROIT—Celebrating its silver jubilee in the household electric refrigerator industry, Kelvinator has introduced for 1939 a line of units in four series and a total of 12 models. Distinctive new styling treatment marks the anniversary year models.

The company's line of 1939 refrigerators ranges in capacity from a 3-cu. ft. model for small apartments to spacious 8-cu. ft. models for homes of large families. Average retail price of the new refrigerators will be lower than in 1938, it was announced.

A special low-priced model, an introduction for families of low income, designed and priced to tempt families still using ice boxes to abandon this method of refrigeration, features the line. Unlike many such models introduced in the past, this is large enough—with 6¼-cu. ft. capacity and almost 14 feet of shelf area—to be an important attraction.

High point of Kelvinator's 1939 presentation is announcement of the "Polarsphere" mechanical unit, a hermetically-sealed mechanism which is said to be so small and so light

(Concluded on Page 9, Column 1)

Exhibitors Will Hail From Far Points

CHICAGO—As interest in the approaching All-Industry Refrigeration and Air Conditioning Exhibition continues to mount on the part of both exhibitors and members of the industry in general, a late check-up reveals that firms from at least 15 states will be represented by displays when the event opens at 10 a.m. on Jan. 16 in the Stevens hotel.

States stretching across the country from New York to Colorado are numbered among the 112 reported

(Concluded on Page 16, Column 2)

Inventory Down, Sales Up, Is Nema Forecast

NEW YORK CITY, Jan. 3—Improvement of 20 to 25% in the electrical manufacturing industry for 1939 over 1938 is forecast by W. J. Donald, managing director, and E. C. Hughes, manager, statistical department of the National Electrical Manufacturers Association (Nema) in a statement made public today.

A very important factor in the electrical goods field, these men say, is the greatly improved inventory situation in which stocks of some major appliances have been reduced to one-third of what they were at this time last year. Particularly is this true of refrigerators and ranges, they declare.

Replacement sales of all appliances, they continue, are increasing at a rapid rate due to the obsolescence of the older appliances and the increased efficiency and desirability

(Concluded on Page 4, Column 5)

Nov. Commercial Sales Pass 1937 Figure

DETROIT—Continuing their recent improvement as compared with comparable 1937 marks, shipments of commercial refrigeration and air-conditioning equipment by members of the Commercial Refrigeration Section of National Electrical Manufacturers Association to distributors during November amounted to 6,466 units, to pass by a few units the

(Concluded on Page 9, Column 5)

Dry-Zero Introduces Low-Cost Insulation

CHICAGO—"Bound-Batt," a new low-cost Dry-Zero insulation which can be fabricated economically even in small quantities or purchased in rolls and cut to size on the job, has been introducted by Dry-Zero Corp.

Chief advantage of the new product, according to Harvey Lindsay, president of the company, is the ease with which it can be cut to the specified sizes and shapes required for insulating refrigerated containers of various kinds. This factor makes the new insulating material particularly suitable for use in such limited-production products as ice cream cabinets, refrigerated showcases, walk-in coolers, quick-frozen food cases, and milk cooling tanks.

The manufacturer will supply Bound-Batt either fabricated to specification or in bulk rolls. The material

(Concluded on Page 16, Column 2)

Four, Sex, and Eight

Midget and giant of the "Silver Jubilee" Kelvinator refrigerator line for 1939. At left is a 4-cu. ft. model, one of the company's smallest, and at right is a model of 8-cu. ft. capacity. Styling stresses simplicity, with an eye to both beauty and functional utility. The exceptionally wide doors reach nearly to the outer cabinet walls and to the top.

What's Doing This Month—Where and When

First All-Industry Refrigeration and Air Conditioning Exhibition, Stevens Hotel, Chicago, Jan. 16-19.

National Refrigeration Supply Jobbers Association, Stevens Hotel, Chicago, Jan. 15-18.

Midwest sections, American Society of Refrigerating Engineers, Stevens Hotel, Chicago, Jan. 16.

All-Industry Banquet, Stevens Hotel, Chicago, Jan. 16. Open to all members of trade in attendance at Exhibition.

Air Conditioning Dealers and Contractors Association, Stevens Hotel, Chicago, Jan. 17.

Refrigeration Supply & Parts Manufacturers Association, Stevens Hotel, Chicago, Jan. 18-19.

Illinois Association of Refrigeration Service Engineers, Stevens Hotel, Chicago, Jan. 18.

Twelfth Annual Exhibit, National House Furnishings Manufacturers Association, Stevens Hotel, Chicago, Jan. 8-14.

First National Washer and Ironer Exhibit, Stevens Hotel, Chicago, Jan. 8-14.

Palmer House Show of Housewares, House Furnishings Manufacturers Association of America, Palmer House, Chicago, Jan. 8-14.

International Home Furnishings Show, Merchandise Mart, Chicago, Jan. 9-21.

Winter Furniture and Appliance Market, American Furniture Mart, Chicago, Jan. 9-21.

Twenty-Eighth Annual Convention, National Retail Dry Goods Association, Hotel Pennsylvania, New York City, week of Jan. 18.

American Society of Heating & Ventilating Engineers, annual meeting, Hotel William Penn, Pittsburgh, Jan. 23-26.

Western Spring Market, Western Furniture Mart, San Francisco, Jan. 30-Feb. 4.

Westinghouse Electric & Mfg. Co., premiere 1939 line showing, Waldorf-Astoria, New York City, Jan. 5.

Stewart-Warner Corp., annual distributor convention, Hotel Edgewater Beach, Chicago, Jan. 5-7.

Leonard division, Nash-Kelvinator Corp., distributor conventions, Hotel Book-Cadillac, Detroit, Jan. 6-7, 9-10, 11-12, 13-14.

Sears, Roebuck & Co. (Coldspot), annual convention, Evansville, Ind., Jan. 4-5.

Servel, Inc., eastern conference, commercial refrigeration and air-conditioning division, Hotel Abbey, New York City, Jan. 27-28.

General Electric Co., specialty appliance sales division, third annual editorial conference, Nela Park, Cleveland, Jan. 27.

Specialty Selling Methods

'Personalized' Kitchen Plan Tried By Firm

BOISE, Idaho—Aligning its kitchen planning service with the program set up by the Modern Kitchen Bureau and permeating each prospectus with an individual personality, Idaho Power Co. is now engaged in a trial-and-error build-up of this phase of its activities, according to J. Carl Baldridge of the utility.

The company starts its personalized kitchen presentations with the first contact which its salesman makes with the prospective home builder. First job of the salesman is to make a note of such specifications of the proposed kitchen as will affect its electrification. Then this information is combined with electrical specifications common to all kitchens.

This combined material then is made up into a loose-leaf folder bearing the prospect's name. This folder starts off with a little personalized dedication, explaining the purpose of the prospectus and assuring the prospect that the plan has been specifically designed to fit only his particular prospective kitchen. This is followed by two mimeographed pages extolling the general benefits to be derived from a modern electrified kitchen.

Next comes a regular layout showing the arrangement of equipment as it would appear in the completed kitchen. Both a floor plan and a perspective view are given, so that the prospect may better visualize the kitchen as planned. The perspective is drawn from a viewpoint above and well outside the kitchen, so as to minimize the distortion common in eye-level views.

Following the drawings is a sheet giving standard dimensions of kitchen equipment and two more pages detailing the advantages of specific major appliances. Last two pages deal with kitchen illumination facilities available to the public through dealers in the utility's territory.

Ray Severine, Idaho Power Co.'s kitchen expert, and Roy C. Whipple, the utility's architect, have so systematized this kitchen planning procedure, Mr. Baldridge reports, that they can turn out a complete prospectus in folder form ready for the customer within two hours.

Though no definite proof of the results of such a program can be offered, the utility points to increasing acceptance of the electrified kitchen idea by new home builders as evidence of the plan's value.

Sharpe Appliance Co. Store Modernized

HOLYOKE, Mass.—Sharpe Appliance Co., Inc. has moved into newly decorated quarters at 579 Dwight St. Both interior and exterior of the store have been modernized.

Maytag washers and ironers, RCA radios, Crosley and Kelvinator refrigerators, range burners, oil burners, and small appliances are sold by the company. Justin Horton is store manager.

Air-Cooled, Soundproof Listening Booth Lures Radio Prospects

BALTIMORE — Year-around air conditioning of the six sound-proof listening booths which the Hamman Music Shop maintains for the benefit of prospective radio and phonograph customers has resulted in a more satisfied clientele and a considerable increase in the department's sales volume, reports Fred B. Hamman, Jr., who is associated with his father in the management of this store.

Heart of the conditioning system is a 3-ton Carrier Weathermaker unit. Conditioned air is led to the six booths (all of which are in the basement) by means of ducts.

Each room contains an intake and an exhaust opening, each of which can be manipulated manually by the customer in the booth. Temperature can be controlled merely by opening or closing the intake vent. Air in the booth may be cleared of smoke or other impurities by opening the exhaust.

According to Mr. Hamman, the cost of the installation and operation of the conditioning system has been more than repaid by the increase in business.

243 Ranges Sold During Massachusetts Drive

SPRINGFIELD, Mass.—Two hundred and forty-three electric ranges were sold by local appliance dealers in an eight-week's contest sponsored by the United Electric Light Co. The campaign went 24% over the originally set quota of 200 ranges.

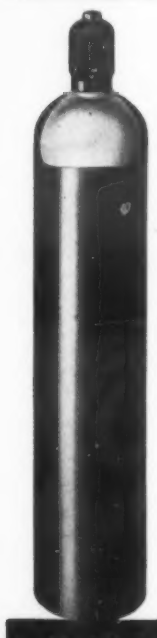
In addition to sales closed during the drive, salesmen also turned in the names of 257 prospects for electric ranges. Fifteen salesmen also won a three-day trip to New York City as a reward for making seven or more sales during the campaign period.

Campaign was run off along the lines of a football game, with each sale counting both for the individual salesman and for the "team" of which he was a member. The "game" wound up with "Yale" beating "Harvard," 106 to 76.

Salesmen-winners of the three-day trip to New York City were:

H. O. Brown and J. F. McNamara, Angers Electric Co.; Larry Lee, Orin Jensen, and Wilson Morrill, Bailey-Wagner, Inc.; George Clarke, Carlisle Hardware Co.; Charles Smith, Chilson's Electric Co.; Sheldon Bartlett and Sam Boyd, Collins Electric Co.; Franklin Lyons and Jerry Messer, Forbes & Wallace department store; Fred Nash, Retail Furniture Warehouse; Oscar Meltzer, State Appliance Co.; Fred Martin and Henry Solomon, Steigner's department store.

Denny Corye and Maurice Hannigan, sales manager and assistant sales manager of the utility, accompanied the winners on the trip.



The Ansul Jobber near you is anxious to give you *More* than just good service . . . . . .

Friendly Personal Service

Ansul distributors and jobbers, with complete stocks of Ansul refrigerants in seven different-sized cylinders, are more than just suppliers: They are friendly businessmen anxious to serve you completely . . . to your full satisfaction. AC-7-8

ANSUL CHEMICAL COMPANY • MARINETTE, WIS.

ANSUL SULPHUR DIOXIDE METHYL CHLORIDE

THERE IS AN ANSUL JOBBER NEAR YOU

'Extra Savings' Story Is Clincher For Water Heater Salesman

NEW HAVEN, Conn. — Showing the prospect that he can "write off" the investment in an electric water heater through savings over and above the cost of operation makes sales for Edgar H. Dowson, of United Illuminating Co., a monthly prize winner in Modern Kitchen Bureau's letter writing competition for water heater salesmen.

The "extra savings" story, Mr. Dowson says, has proved effective in closing prospects who are still skeptical of an electric water heater's worth to them, even after they are shown that it will cost no more to operate than the type of equipment they have been using.

Aim of the sales-clinching letter is to present these extra-savings facts to the prospect, line them up against the initial cost of the equipment (since, in these instances, operating cost is not a factor), and let the individual convince himself that an electric water heater is his best buy.

SAID IN A LETTER

Following is an example of Mr. Dowson's letter-writing approach to an "on-the-fence" prospect:

"Last week, after taking complete meter readings, I charted your regular monthly usage of hot water together with its actual cost, and then showed how we could deliver the same quantity at an even, uniform temperature of 150°, and at less expense when heated electrically . . . a real saving, in fuel cost, of 75 cents monthly.

"In these days of fluctuating values, it is refreshing to discover one investment that definitely and consistently pays for itself. Therefore, as your present equipment has reached the age of economical replacement, let us consider the electric water heater purely from the standpoint of a lifetime investment, with:

"The total outlay involved on a 30-gallon tank, equipped with two heating units, being $120.

THRIFT RECORD

"1. Fuel cost saving at today's prevailing low rate — saving per month, 75 cents; saving per year, $9.

"2. The steady decrease in electricity rates for the past five years assures an even more definite reduction for the future as more and more domestic electrical equipment is installed, particularly when large air-conditioning units and electric house heating become general.

"The reduction is not assured in other energy or fuels. A fair rate-reduction estimate on electricity would be 15 cents per month or $1.80 per year.

"3. An immersion-type modern electric heater has at least three times the economic life span of the corresponding fuel combustion equipment. Taking the combustion heater at the same outlay of $120 (usually more for equivalent tank capacity and quality of construction) over a 10-year life period, we would effect a two-thirds saving—with an electric heater—on the annual depreciation, which amounts to $8.00 per year.

"4. The efficiency (average 95%) of a fully automatic electric water heater is maintained year after year without attention. Unless the fuel combustion heater is kept free from corrosion, scale, and soot deposit its efficiency will drop rapidly, resulting in slow recovery, and service charges will increase year by year. Saving in labor—cleaning and maintaining fuel equipment—25 cents per month, $3.00 per year.

"5. Saving in periodic replacement of flame-type heater flue-pipe, due to combustion corrosion, and repairing leaks in piping through excessive temperatures—$2.00 per year.

'ADDS A ROOM'

"6. With your present automatic house heating, the installation of an attractive, clean, cool, safe, silent, and odorless electric water heater in your basement, placed exactly where you want it—after removing the old unnecessary flue and extra piping—will add a more usable room for recreational purposes. Is this worth 50 cents per month, $6.00 per year.

"7. Elimination of all common fire hazards is a practical form of insurance (electric water heaters are approved by the National Board of Fire Underwriters), beside preventing worry and uncertainty for both the safety of your children and the entire household. What is it worth to eliminate all this worry and secure carefree dependability? Surely 25 cents per month, $3.00 per year.

"8. Fuel combustion devitalizes air by absorbing life-giving oxygen, whereas an electric heater—like clean, electric light—leaves the air pure, wholesome and fresh. Water for dishwashing and rinsing (140° temperature is required for complete sterilization) improperly heated, fails to check the spread of colds and flu throughout the household. You save —what a fuel combustion heater will cost you in lowered efficiency and extra doctor bills—$1.00 per month, $12.00 per year.

"9. Absolutely essential, nothing compares with the luxury of clean real hot water in an ample supply, at the "just right" temperature for bathing, shaving, dishwashing, laundry, sickness, shampoos, house cleaning, and window washing. Is this convenience of 24-hour service, day in and day out, in summer and winter, without the slightest attention, thought, or waiting, worth 25 cents per month, $3.00 per year.

"10. Because a special baffle over the cold water inlet permits an almost capacity draw, and since one gallon of 150° water mixed with one gallon of 50° water will give two gallons of 100° water—the desirable temperature for bathing or washing the hands and face—you would have an adequate hot water usage at any one time of between 50 and 60 gallons with your 30-gallon tank. The tanks are so thoroughly insulated on all sides, hold their heat so well, that if no water were used for several days the cost of maintaining the temperature at 150°—ready for immediate capacity use—would be less than 15 cents a week. Is this extra convenience worth 25 cents per month, $3.00 per year.

"Total saved per year—$50.80."

'Sealed Meter' Tests Boost Range Sales

FORT WAYNE, Ind.—Dealer sales of 316 electric ranges and 92 electric water heaters during the months of October and November in this territory were attributed to the three-day cooking "Discovery" demonstration conducted in the middle of October by Ruth Regadanz, home economist, in the all-electric kitchens of the Indiana Service Corp. The demonstration was sponsored jointly by the Fort Wayne Light & Power Co. and the Indiana Service Corp.

When the range meter was unsealed following the demonstation, it was discovered that the total cost for cooking 36 meals over the three-day period was only 13½ cents, emphasizing both the efficiency and economy of the modern electric range and the low level of utility rates in Fort Wayne, said to be the lowest in the United States for a city in the 100,000 to 300,000 population class.

The October-November sales bring the 11-month total since the first of the year up to 1,655 in range sales and up to 539 in electric water heater sales.

Large newspaper advertisements, announcing the demonstration and carrying the names of all local appliance dealers, were prepared and paid for by the two utilities. Results of the demonstration, together with a message on the superiority of modern electric cookery, have been printed in handy circular form and supplied to all dealers and salesmen in the territory.

568 Westinghouse Units Installed In Baltimore

BALTIMORE—Installation of 568 electric refrigerators in new building construction here has recently been completed by the local branch of Westinghouse Electric Supply Corp., distributor.

Of this number, 388 units of 4-cu. ft. capacity were installed in the Northwood Apartments, the city's newest apartment-hotel, and 180 additional units have been installed in the Oaklee Village, comprising 180 individual dwellings.

THE COLD CANVASS

By B. T. Umor

(Concluded from Page 1, Column 1)

New York is a great state, but Old B. T. U. agrees with plenty of constituents that more of the "thinkers" who have been "remaking America" should be drawn from other sections of the nation. No one part of the country has a monopoly on the brains.

• • •

A Refrigerator For Scarlett

Dickens' classic story of the holiday season, A Christmas Carol, was given the Hollywood treatment and released to the movie public.

English reviewers, however, refused to swallow the producers' liberties with the Scrooge and Tiny Tim epic. When a London Bobby gave out with an Americanese "I'll be right with you" answer, the precise Britons rebelled and demanded a strictly Dickensian "Immej'tly, sir."

It cost a neat sum to dub in the preferred phrase and retain the English flavor of the tale.

Over here we aren't so careful about demanding that the cinema bigwigs stay so close to the original story in the celluloid rehash. When Scarlett O'Hara (Oh, you remember) finally comes to the screen, she will probably be revealed as a Russian aviatrix winning the war in China. Well, as long as they put an electric refrigerator in a kitchen scene, we're not going to kick.

• • •

Society Trend

Splurges of New York debutantes so irked a group of men-about-town that they threw a swanky party for a girl who was born on a river barge —but is really beautiful. They felt that the real beauty, without money bags, should have a chance to compete with the debbies who are not always exactly glamorous.

And in the Hell's Kitchen section of Manhattan's toughest neighborhood they have started a charm school to put a little social veneer on the "Tent' Avenoo" girls.

With this union of the Colonel's lady and Judy O'Grady the "400" may become 4,000,000 and the politicians may have to stave off a landslide woman's vote for Emily Post for president.

• • •

First spadeful of dirt for Chicago's new subway was turned by Secretary Ickes, who is an expert at that sort of job.

• • •

Men's Cooking Classes

Cooking schools have long been the stronghold of the women, but they may be in for some opposition from the mere male. Up in Earlton, N. Y., husbands are taking cooking lessons so they will be able to cook the meals when the wives are away. And at Wayne University, Detroit, fond mothers will be asked to test the cooking ability of their sons, members of the university's men's cooking class.

It will be quite a change from the usual complaints of husbands to the effect that friend wife's culinary efforts don't come up to Ma's. Now mother-in-law can appear on the scene and heckle with, "This pie sure isn't like Junior used to make."

Gilmer Men Go To Show From Sales Conference

PHILADELPHIA—To give its district managers an opportunity to attend the All-Industry Refrigeration & Air Conditioning Exhibition in Chicago, Jan. 16-19, the L. H. Gilmer Co., belt manufacturer, has scheduled its annual sales conference at its main office in Tacony, Philadelphia, for the week preceding the Chicago event.

This arrangement, the company believes, will permit many of the men to go directly to the show before returning to their home territories.

R v.26-28 1939

WATCH KELVINATOR AIR CONDITIONING *From the Inside*—

FOR THE NEXT QUARTER OF A CENTURY

THERE'S not much that air conditioning men miss . . . either looking backward over the history of their industry . . . or looking ahead.

And the fact that this year KELVINATOR celebrates its Silver Jubilee, spotlighting its major achievements in air-conditioning as well as in other fields, is influencing many "far-sighted" distributors to tie in for the *next* 25 years with a company that has *proved* it can "go places."

Balance these years of experience with Kelvinator's successful record in dealing with distributor organizations, and you have a "go-ahead" team that can't be beat. Yet Kelvinator is no strong-arm organization. Kelvinator puts the pressure where it belongs: on helping the distributor to *sell,* rather than trying out shock-tactics to make him buy.

This *"emphasis-on-sell"* plan divides the selling process into its fundamental steps and sets up a *definite* procedure for the most efficient handling of each step. It puts the sale of air conditioning as well as other commercial equipment on a Production Line basis. And the plan works. Figures show that the Kelvinator Sales Production Line kills waste motion, decreases costs and boosts efficiency of the retailing distributor.

Back of this "know-how" record stand the 7 strategically located Kelvinator Commercial Division Offices; and 14 warehouses to simplify and speed up delivery of products.

The complete line of equipment listed below opens up to you widely diversified markets . . . for any season, or all seasons, of the year.

Watch Kelvinator—from the inside! Just send the coupon for further "eye-opening" facts.

KELVINATOR 1914 1939 SILVER ANNIVERSARY

Kelvinator

Kelvinator commercial products include: Room Coolers and Store Air Conditioners, Central System air conditioning equipment—Automatic Heating equipment for oil, gas or coal—Commercial Refrigeration equipment—Water Coolers—Beverage Coolers—Ice Cream Cabinets

KELVINATOR, Division of Nash-Kelvinator Corporation, Dept. K-14 • Detroit, Michigan

Gentlemen: Please send me your Franchise Book on opportunities with:

☐ AIR CONDITIONING
☐ OTHER KELVINATOR COMMERCIAL EQUIPMENT

*Name*_____

*Firm Name*_____

*Street Address*_____

*City*_____ *State*_____

Business Observers Look For '38 Upward Trend To Continue Into 1939

Guaranty Trust Survey Says Restrictions on Business May Retard Advances In '39

NEW YORK CITY—"Fundamental question in the economic outlook is whether business as now organized can function effectively under the restraints that have been and may be placed upon it by outside forces," states the Guaranty Trust Co. of New York in reviewing 1938 and discussing the outlook at the beginning of 1939, in the current issue of The Guaranty Survey, its monthly review of business and financial conditions.

"To some extent," the Survey continues, "recovery itself may suffice to lighten these restraints. For the most part, however, the restrictions represent a new environment to which business is expected to become adjusted. Only experience can show conclusively how successful the readjustment will be and how long it will take.

"Until business gains confidence in its ability to operate profitably under the conditions in which it finds itself, the outlook for recovery will remain obscure. This is one of many reasons for the conservatism with which business tends to regard the outlook as we approach 1939.

PROSPECTS GOOD

"It is not difficult to point to favorable factors in the near-term business prospect. The encouraging implications of the upward momentum of the last seven months are obvious. The imminent threat of war has been reduced, temporarily at least.

"Credit resources are more than adequate to meet any conceivable demand, and interest rates are extremely low. The flow of government funds into business channels will continue in large volume for several months to come. The legislative outlook is less disturbing than it has been at any other time in recent years. The public relations of business also are probably better than in the past; and further improvement in this respect, together with some degree of stimulation to demand, may be anticipated as a result of the huge 1939 expositions in New York City and San Francisco.

"Some of these favorable influences, however, also have their adverse sides. The outlook for peace is still far from clear, and the rate at which the major powers are increasing their armaments represents not only a heavy economic burden but also an indication of the scope of the calamity that an outbreak of war would bring upon the world.

GOVERNMENT THREATS

"At home, the emergency spending program of the government has injected an artificial element into the recent business expansion. In the electric power industry, the outlook for successful operation has been broadly threatened by government competition. Throughout the business field, regulation and taxation have been carried to a point where high and inflexible costs apparently have made the prospects for profitable investment too uncertain thus far to attract new capital into business on a large scale.

"If business does succeed in adjusting itself to these conditions and the needed flow of capital begins, the fiscal position of the government and the excessive broadness of the credit base create uncertainty regarding the possibility of preventing the movement from developing into undue credit expansion. Abroad, the outlook for currency stability has been clouded by political uncertainties, armament expenditures, and the increasing maldistribution of the world's gold.

"Because of the rising trend of business activity in the last several months, the year 1938, viewed as a whole, may be considered as having brought distinct net improvement in most branches of business in the United States. Seldom, even during the recovery period, have general conditions at the end of a year made such a favorable contrast with those 12 months earlier. This progress is the more encouraging in that it has been achieved in the face of a bewildering complex of problems and uncertainties at home and abroad.

SOME DIFFICULTIES

"At the same time, the satisfaction with which business may properly contemplate the record of 1938 must be tempered by realization that many of these difficulties remain to cloud the outlook and that some of them have probably been aggravated, rather than lightened, by the year's developments.

"The general level of business activity in 1938 has, of course, been much lower than in 1937. The index of the Guaranty Trust Co. for the first 11 months of the year (on the basis of the preliminary figure for November) stands at an average figure of 71.0, as against 91.9 for the whole of 1937. In each of these months except November the level has been lower than that for the corresponding period in 1937, and the preliminary November figure is only fractionally above that for November a year ago.

"The significant contrast between the present situation and that a year ago lies not in the level of activity, but in the trend. At the end of 1937, industrial output and trade volumes had been decreasing steadily for nearly five months at one of the swiftest rates on record, with no prospect of immediate improvement; and business had become aware that it was undergoing not a minor readjustment but a major recession that threatened to wipe out the greater part of the gains so slowly and arduously achieved during the preceding five years.

STEADY INCREASE

"At present, on the other hand, activity has been increasing continuously for nearly seven months, although at a pace by no means equaling that of the decline.

"In the last seven months the revival has proceeded with only minor interruptions and has apparently regained at least half of the ground lost in the recession. The European war crisis and the violent storm that crippled transportation and other public services along the eastern seaboard in September caused only momentary halts.

"Some signs have appeared recently that the advance is proceeding at a slower rate, but it is difficult to determine whether this apparent tendency reflects anything more than the usual seasonal let-down in the closing weeks of the year.

"The year has brought no improvement in the outlook for government finances. The emergency spending program has greatly increased the current treasury deficit and the rate of growth of the public debt; and the contemplated program of military and naval preparedness will, if it is carried out, continue for some time to be a further influence in the same direction. The prospect of a balanced federal budget still lies in the indefinite future."

Sociologists & Economists See End of Decline In New Products & Uses

By Robert M. Price

DETROIT—A general tone of optimism for the future of America's industrial and social welfare was evidenced at a joint meeting here last week of many of the country's leading economists, and sociologists. Representatives of national associations of economic and sociological societies combined to present a review of the national and international picture and to try and point out and suggest corrective measures for the weak points in our present social and economic system.

New industries and a flood of new devices and discoveries will provide new sources of employment and profit and bring an unparalleled prosperity in their wake, according to the opinion expressed by these experts.

That these opinions come from a studied understanding of the world social and economic pattern is indicated by the imposing group of economic, sociological, and statistical associations represented at the four-day meeting.

MANY GROUPS ATTEND

Groups represented were: American Economic Association, American Marketing Association, American Association for Labor Legislation, American Association of Teachers of Business Law, American Association of University Teachers of Insurance, Tax Policy League, American Sociological Society, American Statistical Association, Institute of Mathematical Statistics, Rural Sociological Society of America, Econometric Society, American Farm Economic Association, and the American Accounting Association.

Not all of the assembly were in agreement, however, on the course that finance and industry will take in the future. Attacks on the financial policy of the present administration and its retarding effect on the industrial and social advance of this country were made by some members of the group.

FISHER SEES UPTURN

Heavy taxes on large incomes, sit-down strikes, increased wages, and the failure to balance the national budget were cited as among the main causes for stopping of the recovery development in the United States.

Dr. Waldo E. Fisher of the University of Pennsylvania predicted a marked upturn in established industries and a birth of new ones within the decade. He ridiculed the pessimism which he said had "crept into much of economic and political thinking." He based his opinions on interviews he has had with leading manufacturers throughout the U. S.

Dr. Fisher held that, "The problem facing the American people today is not one of technological advancement but of determining the economic and political conditions that are essential for the development of new industries and of discovering how such conditions can best be established."

INDUSTRIAL DEVELOPMENTS

Among the industrial developments destined to take the lead in the near future, according to Dr. Fisher, were low-cost housing, production of small airplanes, use of resin and plastic substitutes for metal and wood, air-conditioning apparatus for the single family residence, and new applications of the photoelectric cell for automatic controls.

Television, he said, would become a reality in 1939 for residents within a 40-mile radius of New York City and Philadelphia. Awaiting development in the near future were said to be new materials and appliances for rural electrification, new types of electric welding apparatus, quick-frozen foods, lamps emitting rays destructive to bacteria (both of these already familiar to the refrigeration industry), and new forms of synthetic lumber for construction and insulation.

Dr. Shelby C. Davis, Philadelphia economist and investment banker, declared that "the laboratories of more than a hundred corporations are bursting with new ideas and processes awaiting investment decisions by industry." Such investment decisions, he said, were likely to be reached in 1939 due to a more favorable political atmosphere as well as to the "bottoming-out in the greatest decline of the enterprise spirit this country has ever seen."

GLOOMY PREDICTIONS

Wendell D. Hance, of Harvard university, held to the belief that the automotive industry would continue to play an ever-leading role in future industrial development and cited the enormous expenditures for research in the automotive field.

On the other side of the forecasting fence were some economists who had rather gloomy predictions to offer to the group. Dr. Lewis H. Haney, professor of economics at New York University, stated that the United States is headed toward financial collapse through its failure to balance the budget and return to the gold standard.

Dr. Haney declared that there would be no lasting prosperity until this country adopts a sound money policy. "I desire to go on record," he continued, "as predicting that we will never pay our public debt in full. It will be paid in terms of dollars, but perhaps in terms of 50-cent dollars. The longer we wait, the less possible it will be to settle up without the pressure which comes as a result of a financial collapse."

MONETARY UNCERTAINTY

Dr. Haney said the most fundamental source of our economic troubles, particularly since 1931, is monetary uncertainty. He strongly advocated a return to the gold standard as a means to stop progressive waste of the national assets and to prevent national bankruptcy. He also maintained that such a return would restore international trade and thus maintain employment and the American standards of living.

Dr. Charles O. Hardy, of Brookings Institution, named as one factor in the industrial slump the rapid rise of costs of industrial production. "This was due," he said, "partly to government price policies beginning with the NRA, partly to corporate price policies, partly to labor practices, and in the case of residential construction, to the high costs of borrowing."

In explaining the unemployment situation in the last eight years, he stated that there was a disproportionately large number of people seeking the status of employed labor, and only a small number of employed people seeking the status of employers.

"What in essence we have been doing under the New Deal is to try to 'remedy' this by doing everything within the power of the government to make the position of employe more attractive and that of the employer less attractive."

SEEK GUARANTEES

Another to add his opinion to those who pleaded for economic and monetary change was Dr. Harry H. Gideonse, of Barnard college of Columbia university. He predicted that "there will certainly be no resumption of private investment here until reasonable guarantees of future earnings are provided."

Quite apart from the gloomy picture painted by these last-mentioned economists were the opinions and predictions of the sociologists who were in session. Realizing that there were many disturbing and unbalancing forces at work to upset a steady social advance, these experts believe that the advancement of the social sciences constitute the main hope for preserving the essentials of democracy.

Professor Edward A. Ross, dean of the sociologists and world traveller and student, pronounced America as "sitting on top of the world socially." He believes that this country is singularly free from race antagonism and that there is a general tone of understanding and decency. "There is very little of the ugly mood in this country," he continued. "Ten and one-half million unemployed persons do not feel that 'nobody cares.' And that's something," he concluded.

Almost every phase and problem of economics and sociology was discussed during the four-day meeting.

The changing pattern of our industrial and social life was stressed; and moves to compensate for these changes were a prime concern of many of the discussion leaders. Changes in distribution channels of industry and the corresponding changes in production and merchandising functions had an important part in the discussions.

From the trend of thinking and the vast amounts of information and statistics presented there would seem to be a brighter future in store for American business and the American people. And while the progress and so-called prosperity may have been temporarily halted by national and world-wide economic and social unrest, it is believed that science, invention, and enterprise will surmount these obstacles and provide a new and more stabile system of industry and an even higher scale of living than ever before enjoyed.

25% Rise In Appliance Field In 1939 Seen By Nema Officials

(Concluded from Page 1, Column 4)

of the many new models which have been developed. They see all branches of the industry looking to increased trade with South American countries and expecting to share in some of the benefits to be derived from the new trade agreements with European countries.

Other factors mentioned as pointing toward a better 1939 include the fact that many plants, long seeking to modernize and add electrical equipment, are in a better position to do so through more extensive use of their own financial reserves and money for utility modernization and expansion probably will be easier to obtain.

Against these bullish factors, it is stated, the industry has reasonable expectations of none, or only a moderate rise in labor costs and the price of raw materials. Also, there is every reason to believe that profits should be greater in dollar volume even though they may not be any higher on a percentage of sales basis.

Pointed out as one of the elements contributing to the general business advance at this time is the pace at which the electrical manufacturing industry has been progressing, especially during last October and November.

The Federal Reserve Board production index went from a level of 75 in the first two quarters of 1938 to 84 in the third quarter and to 101 in the final quarter. Figured on a comparable basis, the Nema index of activity in the electrical manufacturing industry went from a level of 75 in the first two quarters to 85 in the third and to 105 in the fourth quarter, an increase of 40% compared with 35% for all industries combined. This healthy growth is projected through 1939 with the most reliable estimates placing the average index of the Federal Reserve Board for all manufacturing production at 104.

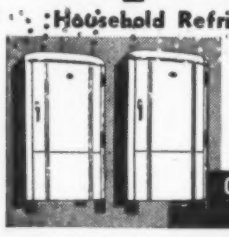
The generally lowered level of business in 1938, state the association officials, brought less business to practically all branches of the electrical manufacturing industry. The value of household electric refrigerators sold by manufacturers this past year was $126,000,000, as compared with 1937's $218,000,000. Value of other household appliances, including kitchen and table appliances, electric ranges, electric water heaters, vacuum cleaners, and washing machines, sold by manufacturers in 1938 was approximately $127,000,000 as against $175,000,000 in 1937.

The index of employment for the electrical manufacturing industry averaged 91.5 for the year and 144.6 in 1937. However, the sale of electricity, as estimated by the Edison Electric Institute, is quoted as 93.4 billions of kilowatt hours in 1938, against 99.4 billions in 1937, so that while business in general suffered a drop of 25 to 35%, the amount of electricity consumed dropped less than 6%.

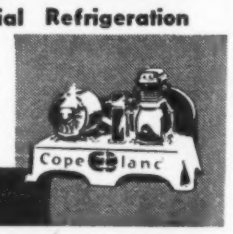
TWO PROFIT OPPORTUNITIES

Copeland Household Refrigeration

Copeland Commercial Refrigeration



Both products of 20 years experience. Both recognized by experts as the "last word" in modern refrigeration—efficient, thrifty, long-lasting. Write today for facts about either or BOTH of these Copeland Profit Opportunities.



COPELAND REFRIGERATION CORPORATION
Sidney, Ohio

Commercial Refrigeration

Florist Designs New Kind of Storage Room After Study of Plant Processes

DENVER—Working on the theory that under certain conditions flowers require oxygen instead of carbon dioxide, Denver Wholesale Florists Co. has installed a new type of air-conditioned flower storage room which, if experiments prove successful, may open up an important new market for air-conditioning equipment.

Bob Alenius, manager of the company's shipping department, began to question the worth of the old type floral refrigerator several years ago. He noticed that the air inside these boxes frequently seemed stifling and stuffy, despite the fact that proper temperatures had been maintained.

Theoretically, the stored flowers should have consumed the carbon dioxide in the air and left it fresh and well oxygenated. Close observation and experimentation, however, convinced Mr. Alenius that such was not the case.

His investigations indicated that the accepted theory of carbon dioxide consumption by flowers applies when the plants are exposed to light, but not when they are in dark storage—that there is a definite relationship between the oxygen requirements of a cut flower and the amount of natural light to which it is exposed.

So the new air-conditioned storage room was equipped to meet the oxygen requirements of the flowers in two ways—by providing for entry of as much natural light as possible, and by supplying a goodly percentage of outside air.

This storage room measures 32 x 33 feet. All but the lower 4 feet of the inside walls are of glass. This not only permits as much light as possible to enter from the shipping room, but also affords an attractive visible display.

Benches for flower storage line the four walls of the room. The large floor area allows for additional storage space. In the center of the room, built around a pillar, is a large tank which is connected directly to the sewer by means of a drain. In this tank is dumped the water from the storage vases.

On one side of the room are three large blowers which are connected with outside intakes and with the refrigeration system. If outside air is warmer than 50° F., the refrigeration system automatically cuts in and cools it to the desired level. Full control of humidity also is provided. On the side of the room opposite the blower units are adjustable outlets through which stale air in the room can be blown out. This assures a high oxygen content at all times.

Refrigeration costs of this storage room will be higher during certain seasons of the year, but the management of the company feels that this cost will be justified by the improved preservation of the flowers. Due to the introduction of outside air, so little refrigeration will be needed in winter that it is believed this saving will balance the additional expense in summer when the outside air has to be cooled. The amount of outside air taken in can readily be controlled, however, in case costs should begin to run too high.

While experiments of this Denver firm are really only in their infancy, and while adequate tests of the theory haven't yet been completed, results obtained so far from the new storage room have been quite favorable, Mr. Alenius states.

Frozen Foods Handler Buys Refrigerated Truck

TOPEKA, Kan.—Lux-Witwer Co., which handles the Penguin line of fresh frozen foods and vegetables and the Booth line of frozen fish and sea foods, has purchased a new refrigerated truck in which to transport these products.

Built by Dahlin Bros. Auto & Carriage Works, Kansas City, Kan., the body of this truck is refrigerated by three Model D-254 low temperature Kold-Hold units producted by Kold-Hold Mfg. Co., Lansing, Mich. The refrigerated body is mounted on a General Motors truck chassis.

German City Building Cold Storage Plant

HALLE, Germany—A large cold storage plant, which will be used for the refrigeration and cold storage of meats, dairy products, poultry, and game, is under construction here near the municipal slaughter house, it was reported by the American Consulate at Leipzig.

The estimated cost of RM 800,000 for the plant, which is expected to be in operation soon, will be borne largely by the City of Halle. Similar to units which have been erected at Magdeburg and Erfurt, the building will be insulated by cork boarding 18 centimeters thick.

Four machines, the largest of which has a capacity of one million calories per hour, will supply the required freezing temperature. The plant will occupy an area of 900 square meters.

Forced-Draft Smokehouse For Hams Installed In Armour Co. Plant

BIRMINGHAM, Ala.—A forced-draft smokehouse for the "tenderizing" of hams has been installed by Armour & Co. in its plant here. This smokehouse consists of a room 10 feet wide, 9.6 feet deep, and four stories high. Access to the interior is provided on each of the four floors.

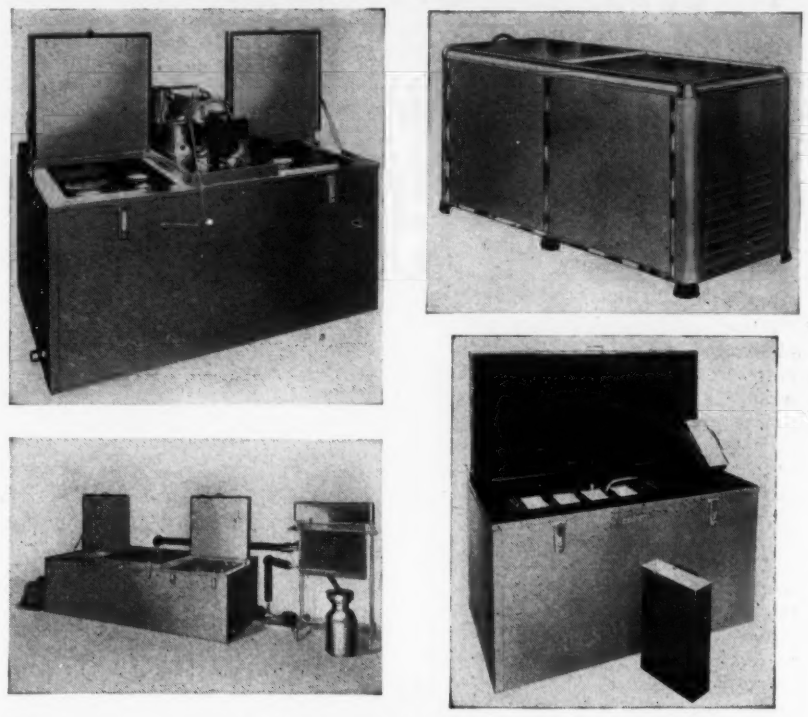
Smoke is blown into the room by means of a stoker, equipped with a sawdust pot, which is located just outside of the smokehouse. Smoke is evenly distributed by means of a fan and duct system extending from the top to the bottom of the room. Part of it is ejected at the top, and fresh air is introduced in controlled amounts. All ducts are equipped with fusible link doors as protection against fire.

In addition to the smoke ventilating system, the room is equipped with steam coils so that the desired temperature may be maintained.

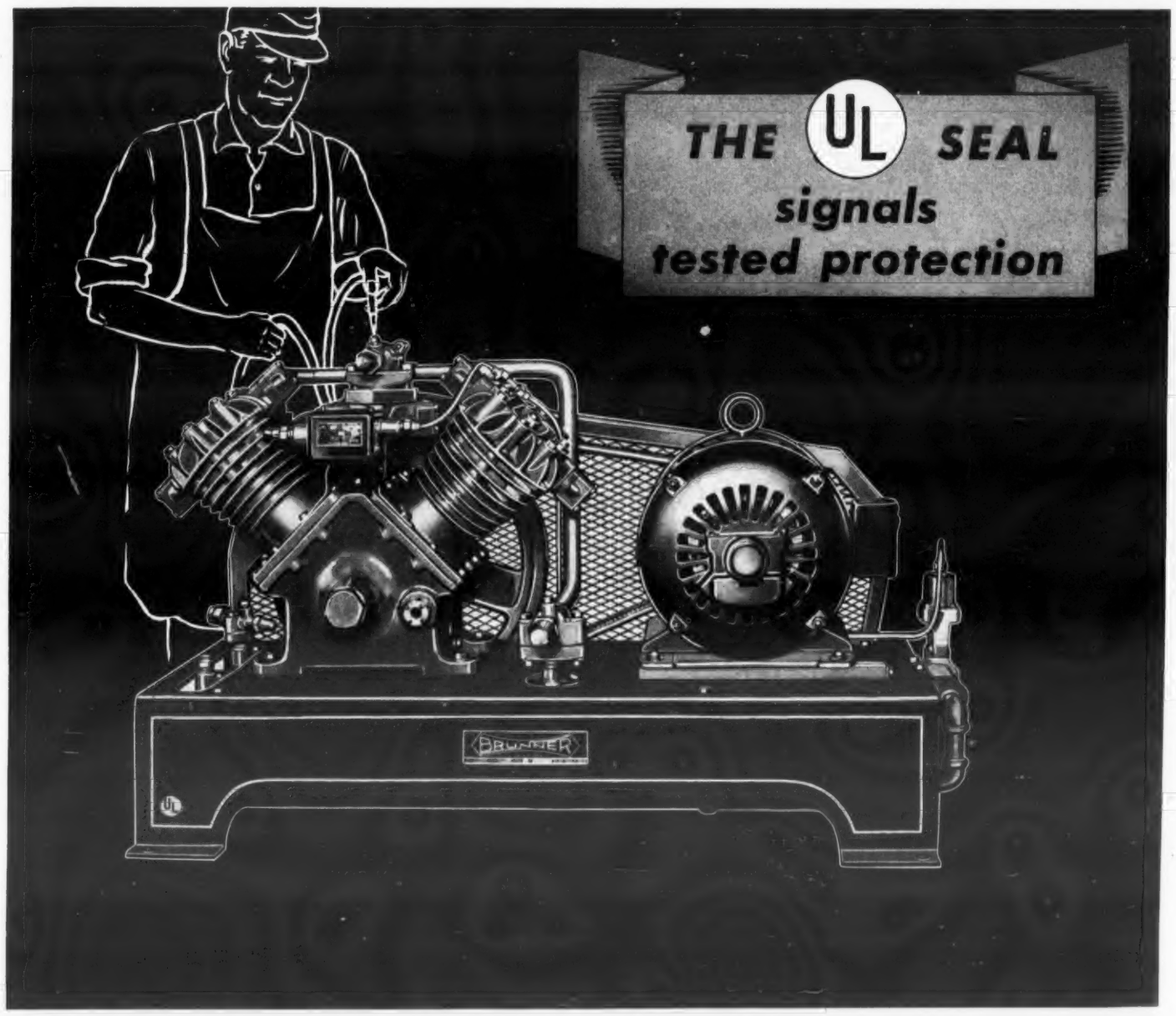
New York Hotel Installs Individual Units

NEW YORK CITY—The Hotel Chalfonte, Amsterdam and 70th St., is replacing its old brine refrigeration system with individual electrical units as part of a $130,000 program of rehabilitation, according to Charles F. Adams, managing director.

Westinghouse Offers For 1939



Westinghouse recently introduced its 1939 line of "packaged" commercial refrigeration equipment. Some models are available for remote-type installations. (Top left) Two-compartment milk-cooling cabinet, with condensing unit and agitator mechanism mounted on the top. (Lower left) Milk-cooling storage cabinet with aerator attachment. A pump circulates the refrigerated water from the cabinet through the aerator, returning it to the cabinet. (Top right) Styled beverage cooling cabinet—one of a new line of four portable units designed to permit installation under a standard bar. (Lower right) Ice maker for restaurants, hotels, etc.



Every Brunner Unit is tested for Underwriters' Laboratories Approval and Carries the U. L. Seal

Just as no Brunner Condensing Unit ever leaves the factory until it passes trial-run tests for performance, so no Brunner unit is ready for shipment until it passes the rigid Underwriters' Laboratories test for safe-proof construction throughout. Subjected to vacuum and to gas pressure tests far in excess of normal conditions, every connection, every detail is tested by an expert. It is on his okay that the UL seal is applied. Besides assuring more dependable and more economical service, the UL test protects the buyer of Brunner equipment against increased insurance rates; protects him, too, under the re-examination service . . . It is pre-shipment precautions like this that contribute much to the Brunner reputation for year-in, year-out dependability . . . Better get acquainted with Brunner today! Refrigerating and air conditioning equipment up to 15 tons of refrigeration. Catalog promptly on request. Brunner Manufacturing Company, Utica, N. Y., U. S. A.

The Symbol of BRUNNER Dependability

Major Appliances

Utility Surveys Users of Electric Ranges; Results Show Why They Are Highly Satisfied

PHILADELPHIA — Overwhelming acceptance and appreciation of the advantages of electric cookery was discovered by the advertising department of Philadelphia Electric Co. in a survey of users recently completed.

Of 37 range users selected at random, all but one commented in various degrees of enthusiasm on the advantages of electric cooking over their previous means of cooking.

All of the users interviewed had owned an electric range for more than a year, so that they had ample time in which to decide upon its merits or faults. Analysis of 12 months' billing, before and after the range was installed, showed increases varying from $1.25 to $3.75 a month.

Purpose of the survey, in addition to collecting statistics regarding actual electric range use, was to obtain statements of approval from customers for use in company range advertisements. Of the 36 customers, 32 willingly authorized statements classifying them as satisfied range users.

Comments made by users included "cleaner and cooler kitchens," "economy of operation," "gratifying results," "cooking the modern way," "bakes better cakes," "results are much improved," and "why didn't someone tell us these things before?"

Several of the range users said they were so impressed by the improved cooking results that they were urging all their friends to adopt electric cookery.

Series of advertisements prepared as a result of the survey made prominent use of the customer testimonials, and were built around the theme, "electric cooking costs much less than you think."

Sun Lamp and Electric Blanket Latest Combination To Be Offered In New York 'Special Price' Drive

NEW YORK CITY—To build business for cooperating appliance dealers during the ordinarily-slow sales months of January, February, and March, General Electric Co. and Consolidated Edison Co. of New York on Jan. 1 launched a three-month drive to promote G-E sun lamps and to introduce the G-E electric blanket throughout the utility's territory.

The model BM-4 sun lamp, priced regularly at $44.95, will be offered during the campaign for $27.95. A timer for use with the lamp, listing at $6.25, will be included for an additional $3.69. Both appliances may be sold under time payment plan, the sun lamp for a down payment of $3.45 plus sales tax, and six monthly payments of $4.50.

A specially manufactured electric blanket will be offered for the drive, and will carry a price of $39.95. Regular price range on blankets is from $44.95 to $69.95. This includes the standard control cabinet with transformer and thermostatic devices, which allow it to operate at low voltage for safety purposes, and make the operation completely automatic.

Sun lamp campaign, which is expected to sell approximately 7,500 units, is modeled along the lines of the fall drive on G-E vacuum cleaners, which passed the 27,000 mark in sales.

Special financing plans have been arranged through the National City Bank, and fair trade agreements under the Feld-Crawford Act have been negotiated to cover both types of appliances.

Both utility and manufacturer will back the drive extensively, New York Edison through newspaper advertising, window cards, billboards, etc., and G-E through the services of 100 field men working with dealers.

All-Electric Kitchens Grace New Atlanta Bungalows

ATLANTA—A modern kitchen in every home—that's the record of the new Emory Court residential development in the Druid Hills section of Atlanta, recently opened.

The development consists of 23 brick bungalows, so arranged that they form a giant horseshow around a landscaped park. Each home is equipped with a Westinghouse electric range, refrigerator, and water heater. The 69 major appliances were sold by Westinghouse Electric Supply Co., which also will handle servicing.

Modern Kitchens Installed In Columbus Development

COLUMBUS, Ohio—Clentangy Village, a model settlement comprised of seven buildings with 403 apartments each equipped with an all-electric kitchen, was formally opened recently.

Occupying a 66-acre tract on the Clentangy river, four miles from downtown Columbus, the housing project provides modern living quarters ranging in rental from $30 to $55 a month. The average family can rent an apartment for about $48 a month.

The electric kitchens, containing range, refrigerator, working surfaces, sink, and cupboards all on one side of the room, were designed by engineers and home economists of Westinghouse Electric & Mfg. Co.

for BETTER SERVICE
EXTRA DRY ESOTOO
V-METH-L
METHYLENE CHLORIDE
VIRGINIA SMELTING CO.
WEST NORFOLK, VA.

PAR CONDENSING UNITS
28 MODELS
1-4 TO 20 H. P.
WRITE FOR FREE CATALOG
MODERN EQUIPMENT CORP.
DEFIANCE, OHIO, U. S. A.

Dayton V-BELTS
Silent, vibra... ess, dependable, long-lasting. Powerful grip prevents slipping. A nearby distributor carries a complete stock for appliances and machines.
THE DAYTON RUBBER MFG. CO., DAYTON, OHIO
World's Largest Manufacturer of V-Belts

BUNDY TUBING
Copper-Brazed Steel. Copper Coated Inside and Out. Sizes: 1/8" to 5/8" O.D.
BUNDY TUBING CO., DETROIT

Refrigerant Valves
Pilot Piston Operated—Ask for Catalog
GENERAL CONTROLS
Chicago, Ill.—450 E. Ohio St.
Other offices in principal cities

They'll Promote Philco Refrigerators

When Philco took over the Conservador refrigerator from Fairbanks-Morse, the first question many members of the industry asked was: "Will they make a big splash with their promotion?" These three men say, "No, we're going to start slowly." They are (left to right) Sidney J. Stall, assistant advertising manager; Ernest B. Loveman, advertising manager; and Sayre M. Ramsdell, vice president in charge of promotion.

Apex Introduces Laundry Line at Chicago Show

CHICAGO — Complete line of Apex washers, ironers, and vacuum cleaners manufactured by Apex Rotarex Corp., Cleveland, will be on display Jan. 8 through 14 in the Stevens hotel at the merchandise show sponsored by the National House Furnishing Manufacturers Association.

The Apex display will include three ironers, eight washer models (including the Spiral Dasher line), and five new cleaners.

The ironers are all cabinet models retailing from $69.50 to $99.95. Improvements include a new mechanism mounting which permits more freedom for easier ironing of shirts, curtains, and similar wide material. The new cabinets have recessed shelves.

On all models the shoe is open at both ends, and each unit is equipped with adjustable knee and fingertip control and an entirely enclosed mechanism. The $99.50 model has automatic heat control. Model 512C, listing at $89.95, has dual thermostats for hand control of shoe heat at either end.

Left end of each ironer has 25% more heat than the remainder of the roll, and this end also has a large beveled feeding surface. The patented Apex "Floating Roll" moves up to meet the shoe, permitting more rigid construction for even distribution of pressure, and increasing ease of operation. All models are finished in white and are cabinet equipped, so they may also be used as utility tables.

Three floor cleaners and two hand cleaners will be shown. Features of these units include a "Pres-Toe" nozzle adjuster, colored dust bags, toggle switch on handle, and headlight to illuminate dark corners.

CP Gas Range Drive To Be Continued During '39

NEW YORK CITY — Alan P. Tappan, chairman of the Association of Gas Appliance and Equipment Manufacturers' domestic gas range committee, has announced an extensive nation-wide promotion campaign for the CP gas range program during 1939, hinged on four major drives to be made during the spring, summer, fall, and holiday seasons.

The American Gas Association will feature 20 range advertisements during the first eight months of 1939 in a number of national consumer publications.

Electromaster Markets Electric Tea Kettle

DETROIT—An automatic electric tea kettle with a safety device which is said to shut off the current when the kettle runs dry has just been put on the market by Electromaster, Inc. here.

When the water in the tea kettle boils down too low for safe operation, the safety device automatically ejects the connection plug, shutting off the electricity. The plug cannot be inserted again until the kettle has cooled off.

The kettle has a capacity of four quarts of water, and is made of aluminum, both for appearance and for easy cleaning. Handle is of molded plastic, designed to fit the hand, and is said to remain cool at all times. Installation plug which connects the unit can be plugged into any convenience outlet.

Heating unit is of the immersion type, designed for this specific use, with 1,250 watts efficiency.

This is said to be the only tea kettle of its kind in the U. S.

4 Companies Change Nema Representatives

NEW YORK CITY—Four changes in their representatives on various committees of National Electrical Manufacturers Association have been made by companies in the electric refrigeration and appliance field.

Harry M. Parsons, sales manager of the range and water heater division of Kelvinator, has been named an associate representative of the company affiliated with the Nema Electric Range and Electric Water Heating sections, taking the place of R. C. Cameron.

William H. Dennison, sales manager of the household division of Universal Cooler Corp., has replaced Hugh A. D'Arcy as an associate representative of the company affiliated with the Refrigeration Division, Household Refrigeration Section.

Eli Atwood, of Merchant & Evans Co., has been named an associate representative to replace F. S. Wilson in the Refrigeration Division, Household and Commercial Refrigeration sections.

A. T. Fish, vice president of A. J. Lindemann & Hoverson Co., has been named voting representative of the company in the Electric Range and Electric Water Heating sections, with Leonard Campbell as alternate representative. Mr. Fish also has been made executive representative of the company in the Policies Division, with Mr. Campbell as associate representative.

Use of Refrigerator In Winter Spotlighted

NEW YORK CITY—Emphasizing the importance of proper preservation of perishable foods during cold weather from both money-saving and health standpoints is an article in the January issue of McCall's magazine titled "Your Refrigerator Pays Its Way in Winter."

Written by Kathleen Robertson, McCall's household equipment editor, with the cooperation of the home service departments of Georgia Power Co. and Minnesota Power & Light Co., the article points out that many more things than just the cost of operation are involved in the question of the winter use of a refrigerator.

When milk and other perishable foods are kept on the back porch or down the cellar, the inclination to save steps often results in the food being left in the kitchen most of the day. Repeated temperature changes result in their not keeping properly, with resultant waste. The same is true of vegetables.

Loss entailed by the spoilage of one roast may be enough to pay for the operation of the refrigerator for a month, the article points out. Or the savings on foods purchased in quantity on bargain days may more than offset the cost of running the refrigerator.

The way a refrigerator is used also has much to do with the cost of operation, the article continues. Housewives are advised to make it a practice to see how seldom they can manage to open the refrigerator door in getting a meal, and to coach the children to do likewise.

Another suggestion for cutting winter operating costs is to refrigerate only those foods which need refrigeration; still another way is to keep food covered. Proper defrosting also is recommended as an economy measure. The overcrowding of the refrigerator so that proper circulation of air is impossible is advised against.

Garbage Disposal Unit Fits Any Type of Sink

RACINE, Wis. — "In-Sink-Erator," a new garbage disposal unit for installation on any type of sink, has been announced by In-Sink-Erator Co. here.

Installed directly beneath the sink outlet and connected to the drain, this unit consists primarily of a 2-quart tubular chamber into which all refuse is placed. In the lower end of this chamber an electrically-operated cutting head reduces all garbage to fine particles which are then forced by means of an impellor into the sewer through the drain.

The opening into the sink is designed with a special spout which receives the garbage, but prevents the operator's hand from coming in contact with any moving part.

The cutter head is mounted on the armature shaft of a ¼-hp. motor and is the only moving part of the unit. The control switch is designed so that the cutter head is operated alternately in first one direction and then the other. The motor is equipped with a special thermo safety switch to protect it from any possible damage.

KRAMER
Large Capacity UNIT COOLERS and HEATERS

KRAMER TRENTON AUTO RADIATOR WORKS TRENTON, N. J.

Air Conditioning

Fire Insurance Safety Bureau Opens Drive For 'Correct' Air-Conditioning Installations

DENVER — An educational campaign, designed to help the air-conditioning industry protect itself against unsafe installation methods, is being conducted by the Mountain States Inspection Bureau here.

L. A. Barley, chief engineer for the Bureau, which makes the fire insurance rates in the Rocky Mountain territory, is giving a series of talks before fire chiefs and insurance men in this area advocating the adoption of municipal regulations covering air-conditioning systems.

While no provision has been made in the Denver building code for regulation of air-conditioning installations, Mr. Barley reports that city officials are supervising such jobs quite carefully. He finds, however, that conditions in the smaller towns throughout the territory are very bad.

"Cracking down" on badly designed and poorly installed systems, Mr. Barley says that "crudely constructed, 'home made' air-conditioning systems present a serious life and fire hazard. In the past two years we have had two serious fires in air-conditioning systems in Denver, both in fireproof buildings.

"There was no loss of life, but firemen were overcome at both fires by toxic gases from leaking refrigerator coils, fumes from combustible air filters, and from burning air ducts constructed of rock wool with an asphalt binder."

Mr. Barley states that "fire insurance companies are very much concerned over the increasing number of disastrous fires occurring from improperly installed air-conditioning systems," and cites a "recent fire in a large department store in Detroit, caused by a cigarette thrown into an intake register . . . resulting in $100,000 smoke damage."

As protection against unusual hazard, fire insurance companies are providing a minimum penalty of 20% of the base rate for buildings using non-standard air-conditioning systems, Mr. Barley asserts.

"Most of the fires which have occurred in air-conditioning systems are due to faulty construction or improper materials, such as combustible filters, air ducts constructed of highly combustible materials, or metal ducts lined with a combustible sound deadening materials," he says.

Illustrating "faulty construction," Mr. Barley describes the fan room of a small theater he recently inspected. Built as a sheet-iron addition to the theater itself, this room was lined with a highly combustible fiberboard. In event of fire, the burning fiber-board would instantly fill the theater with dense smoke, which would undoubtedly result in panic.

Suggestions made to fire chiefs and building inspectors for the protection of air-conditioned buildings against fire hazard are:

1. See that air intake is properly screened and not located where smoke from a rubbish fire could be drawn into the building.
2. Check fan and motor room for incombustible lining, proper wiring, and a control switch located outside the room.
3. Check type of refrigerant used.
4. Check materials used for duct system lining.
5. See that return intake registers are properly screened, are above the floor, and that return ducts are accessible for cleaning.

Mr. Barley suggests that property owners contemplating air conditioning be requested to submit plans and specifications to some impartial engineering organization or to his bureau, as a preventative step. Where no suitable municipal regulations exist, Mr. Barley urges insurance men to "bring every possible pressure to bear to see that they are adopted."

Hotels Turn To Idea Of Portable Coolers

(Concluded from Page 1, Column 1)

of guest rooms in the higher priced brackets, which had not enjoyed a large occupancy. Since the units were placed in service, a steady occupancy of these rooms has been reported, as well as an increase in the demand for lower priced non-air-conditioned rooms.

Forty-six hotels which have recently installed portable Carrier units include: Anchorage Apartment, Washington, D. C.; Arlington hotel, Hot Springs, Ark.; Beaux Arts apartments, New York City; Ben McGehee hotel, Little Rock, Ark.; Bryant hotel, New York City; Carter hotel, Cleveland; Chase hotel, St. Louis; Continental hotel, Washington, D. C.; Hotel Fort Des Moines, Des Moines, Iowa; Eastman hotel, Hot Springs, Ark.; Emerson hotel, Baltimore; Farragut hotel, Knoxville, Tenn.

Gotham hotel, New York City; Governor Cabell hotel, Huntington, W. Va.; Hampshire House, New York City; Hermitage hotel, Nashville, Tenn.; Jung hotel, New Orleans; Kentucky hotel, Louisville, Ky.; Lamar hotel, Meridian, Miss.; Lassen hotel, Wichita, Kan.; Lee House, Washington, D. C.; Lorrain hotel, Norfolk, Va.; Majestic hotel, Hot Springs, Ark.; Martinique hotel, New York City; Mayflower hotel, Washington, D. C.; Monteleone hotel, New Orleans; Oklahoma Biltmore, Oklahoma City, Okla.; Patrick Henry hotel, Roanoke, Va.

Raleigh hotel, Washington, D. C.; Robert E. Lee hotel, San Antonio, Tex.; Rochester hotel, Rochester, N. Y.; Roosevelt hotel, Jacksonville, Fla.; Rowe hotel, Grand Rapids, Mich.; St. James hotel, Philadelphia; Schroeder hotel, Milwaukee; Shoreham hotel, Washington, D. C.; Stevens hotel, Chicago; Hotel Syracuse, Syracuse, N. Y.; Thomas Jefferson hotel, Birmingham, Ala.; Hotel Vicksburg, Vicksburg, Miss.; Whitehall hotel, New York City; Whitely hotel, Montgomery, Ala.; Willard hotel, Washington, D. C.; William Len hotel, Memphis, Tenn.; William Penn hotel, Pittsburgh.

New York Firm Will Handle Airgard Line

NEW YORK CITY—Atmospheric Electric Filter Corp. has been appointed distributor of the full line of air-conditioning accessories and equipment manufactured by Airgard Mfg. Co. in the New York metropolitan area, reports R. L. Barker, Airgard eastern manager.

In addition to New York City, the territory to be covered by Atmospheric Electric Filter Corp. includes Long Island and the counties up as far as Poughkeepsie. Now located at 233 Broadway, the company contemplates moving and expanding to larger quarters, Mr. Barker reports.

New Damper Regulator Line Introduced

NEW YORK CITY—A new series of damper regulators and quadrants for use with small, medium, and large dampers in residential and commercial air-conditioning systems has been announced by the Parker Kalon Corp. here.

Of special interest to the air-conditioning industry is the new heavy-duty ball-bearing quadrant, which is said to assure smooth, trouble-free operation of heavy dampers. The unit is available in a number of stock sizes.

Herman Seelbach Dead

BUFFALO — Herman Seelbach, heating and air-conditioning engineer and president of Equipment Sales Corp., died at his home in Hamburg after an illness of two years.

Mr. Seelbach was born in Buffalo 58 years ago. He was a member of American Society of Heating & Ventilating Engineers.

Reactions of Humans To Air Cooling and Stoker Problems Feature ASHVE Program

(Concluded from Page 1, Column 3)

Winslow; "Cardiac Output, Peripheral Blood Flow, and Blood Volume Changes in Normal Individuals Subjected to Varying Environmental Temperatures," by F. K. Hick, R. W. Keeton, Nathaniel Glickman, and H. C. Wall.

Other papers related to the effects of air conditioning on the human body are: "The Role of the Extremities in the Dissipation of Heat from the Body in Various Atmospheric and Physiological Conditions," by Charles Sheard, Marvin M. D. Williams, Grace M. Roth, and Bayard T. Horton; and "Skin Temperature of the Extremities and Effective Temperature," by the same authors with the exception of Miss Roth.

Of interest to medical, hospital, and air-conditioning authorities will be the paper on "Air Conditioning Requirements of an Operating Room," by F. C. Houghton and Dr. Lee Cook.

C. S. Taylor and J. D. Edwards will contribute to the knowledge of radiant heat with "Some Reflection and Radiant Characteristics of Aluminum."

The home building industry will profit by three papers, including "A Study of Heat Requirements of a Single-Glazed House and a Double-Glazed House," by M. L. Carr, R. A. Miller, Leighton Orr, and David Shore; "Heat Transfer in Storage Water Heaters," by D. W. Nelson and A. A. Rosenberg; and "Practical Methods of Preventing Condensation of Moisture in Walls," by F. B. Rowley, A. B. Algren, and C. E. Lund.

New research in the automatic stoker industry will cover "Responsibility of A.S.H.V.E. Towards Solid Fuel Industry," by W. A. Danielson; "Selection of Solid Fuels from the Viewpoint of the Small Consumer," by P. Nicholls; and "Small Stokers," by A. C. Mulcey and R. A. Sherman.

Continuing in the solid fuel heating field will be papers on "Improvements That Are Needed in Heating Equipment," by T. H. Urdahl, and "Performance of Stoker-Fired and Hand-Fired Warm Air Furnaces in the Research Residence," by A. P. Kratz and R. B. Engdahl.

Of special interest to industrial and commercial air conditioning will be papers on "Frictional Resistance to the Flow of Air in Ducts," by F. C. Houghten, J. B. Schmieler, John Zalovcik, and Nicholas Ivanovic, and "Air Conditioning in Industry," by W. L. Fleisher, A. E. Stacey, Jr., and F. C. Houghten.

Smoke abatement authorities in American cities will have special interest in "Limitations of Smoke Abatement Problems and Practical Methods for Their Elimination," by H. B. Meller, and "Relation of Rank of Coal to Smoke Producing Tendencies," by H. J. Rose and F. P. Lasseter.

New information on filters will be presented in a paper on "Air Filter Performance as Affected by Low Rate of Feed, Various Types of Carbon, Dust Particles Size and Density," by F. B. Rowley and R. C. Jordan.

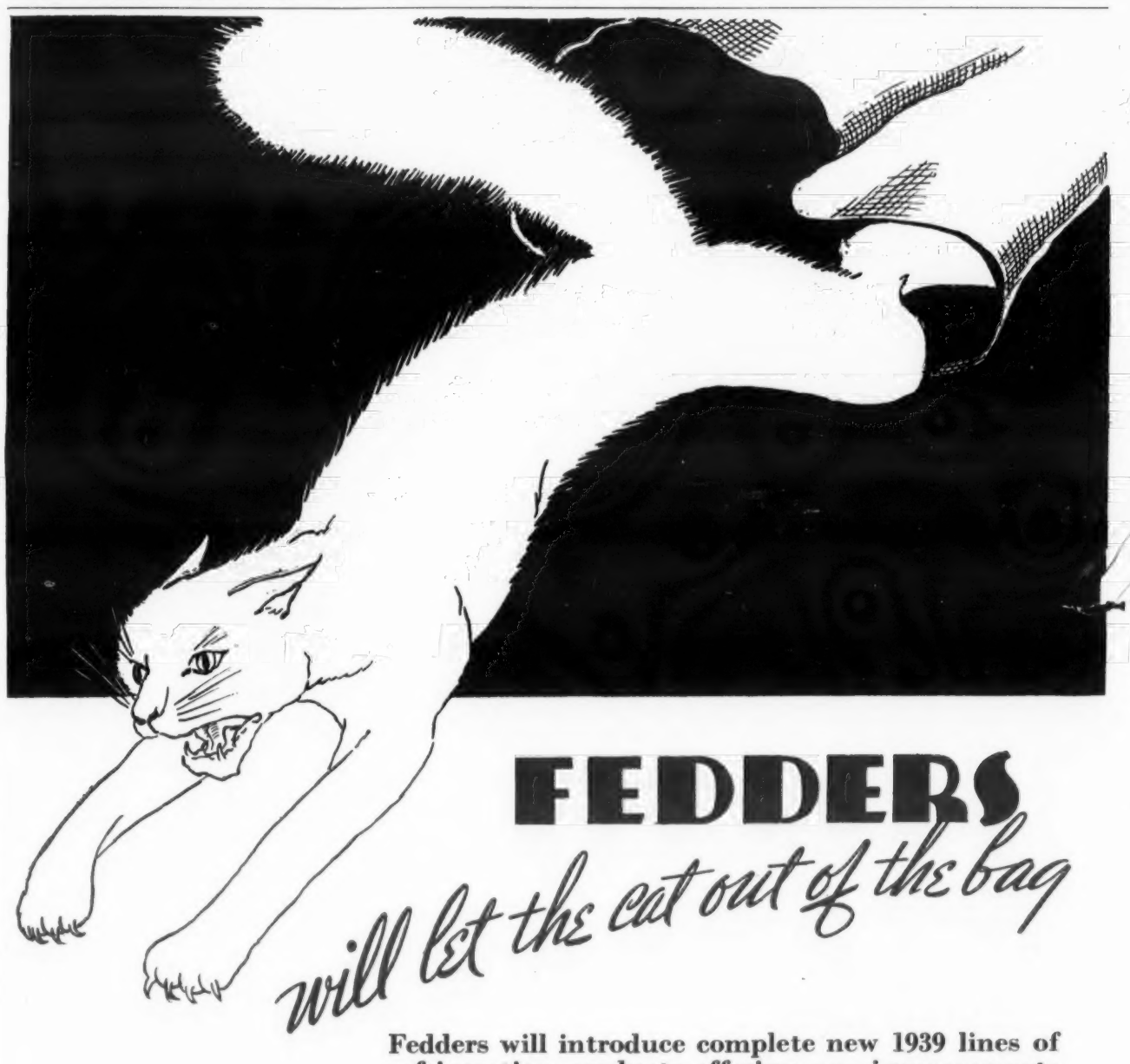
"The Effect of Heat Storage and Variation in Outdoor Temperature and Solar Intensity on the Heat Transfer Through Walls," will be discussed by J. S. Alford, R. E. Ryan, and F. O. Urban. Completing the discussion will be papers on "The Flow of Heat Through Walls," by F. E. Giesecke, and "The Determination and Practical Application of Weather Design Data," by T. D. Urdahl, John Everetts, Jr., and J. C. Albright.

Penrose To Speak At Meeting In Boston

BOSTON — Charles Penrose, vice president of Day & Zimmerman, Inc., of Philadelphia, and the senior vice president for North America of the Newcomen Society of England, will address a joint meeting of several engineering groups here Jan. 12, on "Industry's History."

Drawing from the wealth of historical material available through the Newcomen Society, Mr. Penrose will trace the history of industry from its early beginnings in America up to the present time, including the development of air conditioning for industrial processes and the recent expansion into the field of human comfort.

The affair is being sponsored by the Air Conditioning Bureau of Boston, the Engineering Societies of New England, the New England Council, and the Associated Industries of Massachusetts.



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Fedders will introduce complete new 1939 lines of refrigeration products offering new improvements ... new sales features ... new markets ... new profits! We will let the cat out of the bag at the Fedders display at the Refrigeration and Air Conditioning Exhibition in Chicago!

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The New Year

PREDICTIONS constitute a risky business. In previous years AIR CONDITIONING & REFRIGERATION NEWS has published long-range forecasts of major executives in the first issue of each year. But partly because of the vicissitudes of 1938, many of which were brought about through unexpected factors, a number of executives who have customarily contributed their thinking to these annual forecasts have asked us to "lay off" this year. They want to wait for another year to pass, for the industry to recover a measure of equilibrium, before committing themselves again on the probable course of the business.

Consensus of Officials' Opinions On Business Situation In 1939

In lieu of these forecasts by executives, perhaps we can offer the consensus of their several opinions, augmented by considerable forecasting done by administrators and economists interviewed in Washington recently.

These thoughts are offered for what they may be worth—and not particularly as the opinions of the NEWS—with the idea of presenting to subscribers some current thinking on the topics of air-conditioning and refrigeration prospects for 1939, along with those of general business.

Commercial Market Should Be Best For Air Conditioning

For air conditioning:

Largest volume will probably be found among commercial establishments, with self-contained units getting the biggest call. Capacities of self-contained units are being increased, as is efficiency, and market surveys reveal that there still exists a tremendously large market in this field.

Home air conditioning isn't expected to make much headway, except in isolated instances of aggressive specialty selling organizations which make a strong drive for this type of business.

Industrial air conditioning may not expand in volume but, it is hoped, will prove more profitable, with "sample" installations pretty much out of the way.

Much Present Commercial Equipment Obsolete

For commercial refrigeration:

A genuine increase in volume is predicted. This is predicated on (1) the large number of replacements which must be made in food merchandising establishments, thousands upon thousands of which are using antiquated systems which have high operating costs and annoyingly frequent service calls; (2) the expansion of frozen foods marketing; (3) further increase in locker storage installations; and (4) new rural markets.

Sales of bottle coolers and ice cream makers also are expected to hold up well.

Household Volume Increase May Hit 15 To 20 Per Cent

For household refrigeration:

Earlier predictions were based on a projected increase of 10% in retail sales. Initial orders from distributors at conventions, plus encouraging general business signs, are now lifting these predictions to 15% and, in some cases, 20%.

Replacements will be a big gun in the merchandising attack for 1938. And improved models will be a factor.

A strong movement toward fewer and better dealers is encouraging, as is current planning to help maintain retail price structures and eliminate courtesy discounts.

Utilities are expected to make a come-back in electric refrigerator merchandising and promotion in 1939. Department stores, partly because of adverse experiences in 1938, and partly because of their leaning toward private brands, are not expected to be so strong a factor in the general picture.

Most encouraging factor is the favorable inventory situation. Dealers should be able to sell 1939 models in most territories right from the beginning of the season.

Marked Upswing Predicted For First Quarter of Year

For general business:

Both government and private economists say that there will be a marked upswing during the forepart of the year. A "corrective" dip is expected; but the general belief is that national income for 1939 will exceed that of any year since 1929—with the possible exception of 1937.

Automobile production is figured to go at least 25% better than it was in 1938. Steel production —about the same increase. Railroad carloadings—up about 20%.

Aviation production should hit new all-time highs—also shipbuilding, petroleum output, and some other "war" industries. The administration definitely plans to rearm America.

Among the new industries for which rapid expansion is predicted are plastics, artificial silk, and new forms of radio transmission (including television).

Labor is still an unknown and disturbing quantity. Better business will probably bring more strikes. Jurisdictional fights between AF of L and CIO will continue, to the detriment of business. A determined effort will be made to amend the Wagner Act, but nobody knows how this effort will fare.

Both Residential & Industrial Construction Should Do Well

Brightest spot in the whole picture is construction and housing (see editorial in the Dec. 28, 1938 issue of the NEWS). Industrial construction will be boosted because of the requirements of the rearmament program.

Currently business and the administration seem to be moving closer together—but nobody knows when Roosevelt will upset the apple cart again.

War may break out any minute in Europe, which would muddy the waters considerably.

Hence it would seem that, although the picture isn't entirely bright (is it ever?) there are a number of good omens for the coming year.

And after all, the important thing is the thinking and effort which each individual puts into his business. Given any kind of a toehold, the ingenuity of American business men may be generally counted upon to surmount any obstacles which may lie in their path.

They'll Do It Every Time . . . By Jimmy Hatlo

WHO, BILL? NO-HE AIN'T IN THE OFFICE RIGHT NOW - NO-HEH-HEH - BUT WON'T I DO? WHAT'S THAT? I SAID YOU HAD AN AWFUL CUTE LITTLE VOICE. BET YOU'RE CUTE, TOO - JUST LIKE IT — HOW ABOUT MEETING ME IN FRONT OF THE LIBRARY ABOUT FIVE-FIFTEEN? I'LL BE WEARING A —
WILL HE DO? I'LL SAY HE WILL! I THINK HE'LL DO A STRETCH IN THE EMERGENCY HOSPITAL !!
IT'S O.K. BY ME. MY GIRL TOLD ME HE TRIED TO DATE HER UP-ONE DAY WHEN SHE PHONED IN HERE.
AH, HE'S HARMLESS IF A DAME EVER TOOK HIM UP HE'D BE AFRAID TO GO OUT OF THE OFFICE.
LISTENING TO THE TELEPHONE LOTHARIO DO HIS STUFF. THERE'S ONE IN EVERY OFFICE. THEY'LL DO IT EVERY TIME
JIMMY HATLO
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10-15

LETTERS

They'll Be Wanting '39 Data In a Few Weeks

Boswell-Maytag Co.
116 West Kearsley St.
Flint, Mich.

Sirs:

Please inform us where we may get a booklet showing the specifications of household electric refrigerators for the year 1938.

Also the same covering electric and gas ranges.

FORREST W. BOSWELL, Manager

Answer: We are completely out of stock of the issue which showed the specifications for *all* household electric refrigeration units. However, we have a booklet which gives specifications for the Nema companies only (those companies which are members of the National Electrical Manufacturers Association). The companies in the Refrigeration Division of the association include:

Apex Electrical Mfg. Co., Crosley Corp., Edison General Electric, Fairbanks, Morse & Co., Frigidaire Division, General Motors Corp., General Electric Co., Gibson Electric Refrigerator Co., Johnson Motors Co., Kelvinator Div., Nash-Kelvinator Corp., Leonard Div., Nash-Kelvinator Corp., Norge Div., Borg-Warner Corp., Sparks-Withington Co., Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Electric & Mfg. Co.

This booklet is available at a cost of 25 cents per copy.

Beer Cooling Equipment Makers Step Forward

Nu-Way Beer Coil Service, Inc.
2438 W. Arthington St., Chicago

Editor:

We are interested in obtaining all available information you may have to offer on beer cooling equipment. One of our service men has "The Red Book" published by your concern and has suggested that we communicate with you for the information we desire.

We are especially interested in direct draw equipment and information and all the necessary equipment relative to a precooler unit in the basement with a cold air shaft to the coil box, such as high side units, blowers, controls, etc.

We will also appreciate whatever other information you may have relative to all other types of cooler units.

Will you please enclose catalogs also containing the information we desire.

WALTER T. GEHR

How To Obtain The News In Cleveland

1880 E. 81st St., Cleveland, Ohio

Sirs:

I would like to have some information as to where I can purchase the NEWS in Cleveland. I have not been able to subscribe for the NEWS for some time, not being in one place long enough. I would like to take a year's subscription but don't know for sure if I will be here for that long, and I miss the NEWS very much.

C. A. SWINGLER

Answer: You may obtain copies of the NEWS through the following jobbers in Cleveland:

Harry Alter Co., 4506 Prospect Ave.

Williams & Co., Inc., 1748 E. 22nd St.

Refrigeration Supplies Distributor, 1789 E. 24th St.

You can enter your subscription for a short term (13 weeks for $1.00) if you wish, until you are more permanently located.

Market Data Reprints Readily Available

4406 Clarendon Ave.
Chicago

Editor:

I wish to secure as much information as possible regarding the market conditions for domestic and small commercial refrigeration equipment.

Am interested principally in data relative to sales during the past five years, estimated saturation of the market, rate of obsolescence, and any articles relative to prospects for 1939, or the future of the industry.

Will you kindly mail any issues of REFRIGERATION NEWS bearing on the above subjects to me at Hotel McFarland, Connersville, Ind.

C. W. ALBERTSON, Refrigeration Engineer

Answer: You will find all available statistics on refrigeration and air conditioning up to 1935 in the "1935 Refrigeration & Air Conditioning Market Data Book."

We have not published a revised edition of this book, but have compiled a folder containing reprints of various tabulations of refrigeration and air-conditioning statistics covering the years 1935, 1936, 1937, and 1938, which have been published in AIR CONDITIONING & REFRIGERATION NEWS.

The Market Data Book, formerly priced at $3.00, is now available together with the supplementary folder at only $1.50.

The Class In Sing Sing Sends Thanks

354 Hunter St., Ossining, N. Y.

Sirs:

Enclosed find money order for the amount of $12.00 to cover my subscription to the NEWS for one year and also for the manuals that I have checked on refrigeration.

I would like to know if you intend to publish a manual on soda fountain and cabinet servicing, as I am interested in that also. If not could it be possible to start my subscription with the issue that will take in all of that, as I hate to miss it.

Tell me how I could be put on your catalog service as I would like to be on it, as I have read much about it in the sample copies of the NEWS that you sent to me, and for which I thank you.

In fact the entire Refrigeration Class of Sing Sing sends their thanks, as it will help us to keep up in our studies, and on the latest news in the refrigeration world.

EDWARD C. REYMERS (95-155)

'Noise' Information Rests Quietly In a Book

Collum Fetch & Co.
1407 Erie Blvd. East
Syracuse, N. Y.

Editor:

Some time ago I had occasion to read an article in your magazine pertaining to the measurement of voice and some of the principles allied with acoustical engineering. Several of the concepts are very hazy in my memory and I would appreciate having two copies of this magazine to refresh myself from time to time.

Can you send me the copies or advise me where I might purchase them conveniently?

FRANK X. CONNELLY

Answer: The information pertaining to noise in air-conditioning systems, to which you refer, is now available in book form. This information (together with much other data) is in Manual No. A-5 of our "Air Conditioning Made Easy" series. The book is priced at $1.00 a copy.

294 Union St.
Simcoe, Ont., Canada

Sirs:

Please bill me for one year's renewal to the NEWS (including one of Manuals Nos. A-4, A-5, A-6, A-7) and the other three manuals as I would like to complete my library of such informative books, as soon as possible.

Here's wishing you all a mighty Happy and Prosperous New Year!

A. G. INNES

Change In Condenser And Gas Distribution Made By Kelvinator

(Concluded from Page 1, Column 5)

that a housewife can easily hold it in her hands, but which is said to be powerful enough to refrigerate five household refrigerators.

According to H. W. Burritt, vice president in charge of sales, Kelvinator engineers have worked on the mechanical unit for 10 years. Introduced as a sealed unit in last year's models, it required service on only seven tenths of 1% of the units sold, Mr. Burritt said. This year's assembly has been improved to effect greater operating perfection. Fan assembly has been removed, a larger, more efficient condenser has been installed, and a larger air duct is used to get "chimney draft" natural convection.

Another advancement for faster freezing and more efficient refrigeration is the employment of injector-type refrigerant distribution in the "high speed" freezer. This can be likened to the passage of water through a garden hose nozzle. It sends the refrigerant coursing through the tubing faster, and provides better contact of refrigerant with the tubing which does the work of cooling the evaporator.

Principles of functional design (for utmost utility) which the motor car stylists followed this year were employed by Kelvinator designers. Symmetrical cabinets of simple lines resulted. There is no "gingerbread," or excess use of bright metal.

Although new models appear not to have any doors at all, the entire front seems to open up. This is almost literally true, for the doors extend practically to the edges of the sides and top of the refrigerators.

This door design enabled Kelvinator engineers to produce an "open throat" refrigerator. There is no set-back between door opening and sides of the refrigerator. Where once the metal of the food compartment was rolled, forming corners, the sides now are flush with the door opening. This makes it possible to use every inch of the sliding shelves.

The new functional design also makes for greater accessibility and visibility. Cabinets are wider and not so deep. Food and containers are within easy reach, even when at the back of the cabinet, and food inventory can be taken at a glance, because all objects on the shelves can be readily seen.

Hardware is in the modern motif and door handles feature "touch control" and quiet, positive locking action. There is a new lock bolt of a plastic material, which is said to have a longer life, and to be more efficient than metal.

Door construction under the new design is so sturdy that a full-sized man can swing back and forth on the doors without pulling them out of alignment, it is said.

Cabinets in the standard models are of welded steel construction.

There are seven standard models in the 1939 Kelvinator line, and five special models. The standard models are in the PK (porcelain) and K (Permalux) series. The first boasts 5, 6, and 8-cu. ft. sizes, and the latter, 4, 5, 6, and 8-cu. ft. models.

The specials are known as the KS and KT series, and all models are finished in "Permalux." The KS comes in 3, 4, 5, and 6-cu. ft. models, and the KT is made up of the low-priced 6¼-cu. ft. size alone.

All 1939 Kelvinators are equipped with the new Polarsphere sealed mechanical unit, and all have been christened as "Twenty-fifth Anniversary Models."

ADDITIONAL FEATURES

In addition to the new mechanical unit, and the new styling and construction, the following features also are a part of the new line:

Additional fast freezing shelf: There are two fast freezing shelves for the rapid manufacture of ice cubes and preparation of frozen desserts. The refrigerant tubing runs through the freezing sleeve of the shelf on which the top ice trays rest. As in the past, the bottom shelf also is a fast freezing level.

Sliding and adjustable shelves: The sliding shelves now stretch across the full width of the "open throat" cabinet, so that every available square inch of shelf space is usable. They can be adjusted to two positions to make room for bulky and tall articles. The adjusting rod also serves as a guard rail on the sides. The guard rail also is continued across the back of the shelves. On the special models, the shelves are the rigid type, but are removable.

"Speedy Cube" trays: All standard models are equipped throughout with the new Speedy Cube trays, which have a new, two-way cube and tray release. A turn of the fingers releases the ice trays, and a side-action lever releases the ice cubes—a trayfull, or as many as desired.

Twin dome lights: All parts of the refrigerators are lighted by these twin dome lights. There is one on each side of the freezing unit, and they are connected to a mutual switch which operates when the door is opened and closed. All but the KS-3 and the KT models have this feature.

MEAT COMPARTMENT

Cold chest and meat-keeping compartment: In the standard models, Kelvinator this year introduces a glass-covered meat-keeping compartment. It is located just below the freezing compartment and offers refrigeration for fresh meats. The glass cover makes it possible to see the contents of the compartment at a glance.

Larger cold storage space: Because of the design of the Kelvinator "high-speed" freezer, there is extra room for the storage of frozen foods, packaged ice cream, meat, game, and similar foods which require extremely cold temperatures. This space is obtained by removing one or more of the ice trays.

Twin crispers: Sliding, glass tops make a new convenience feature for this part of the refrigerator. The glass tops on the new twin crispers not only make it possible for the homemaker to see the contents of the crispers at a glance, but are so arranged that they provide another shelf for the refrigerator. One crisper can be placed on top of the other, too, to make room for bulky objects, such as a watermelon. This is a feature in the standard models only.

New thermometer: In the standard models (with the exception of the K-4), the new thermometer is mounted between the twin crispers. On the K-4, and KS-5 and 6, a shelf-type thermometer is used.

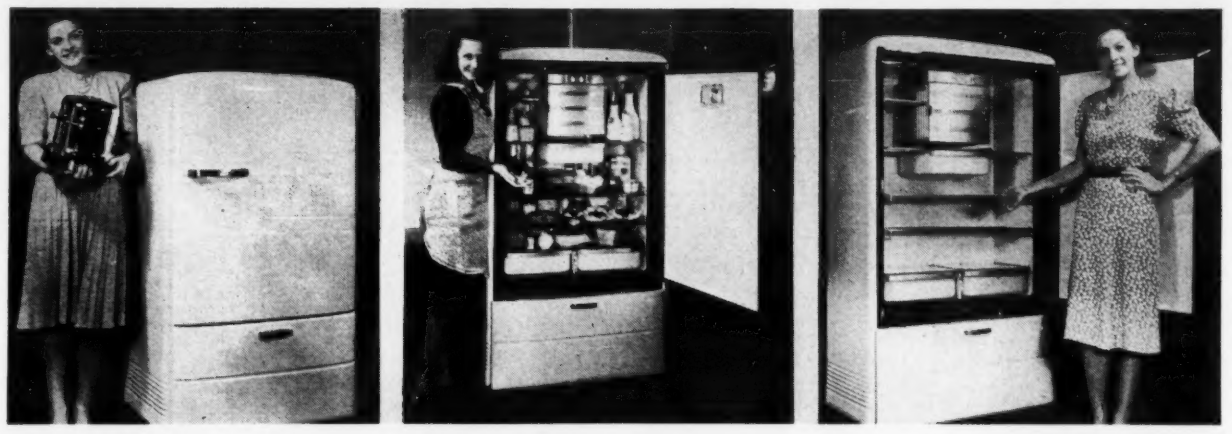
Vegetable bin: This now holds more than a bushel of potatoes, onions, and similar foods which do not need refrigeration. It is a feature of all standard models but the K-4.

Deluxe Kelvin control with automatic reset: The control has an automatic return from the "defrosting" setting. Refrigeration automatically is resumed after the unit is defrosted. Besides the automatic return, it has a "vacation" and "fast freeze" setting, twelve intermediate freezing speeds, and a separate control for "on" and "off" and "defrost." The panel, in keeping with the cabinets, is of brushed silver with a semi-gloss finish. Five special models have the Kelvin control, which features finger-tip regulation and has markings for freeze, normal, fast freeze, vacation, defrost, and off.

All of the models have large ice cube, as well as quick-freezing, capacity. The 3-cu. ft. box, for example, will produce 40 large cubes, the equivalent of 4 lbs. of ice, at one freezing. The 8-cu. ft. models produce 108 cubes (12 lbs. of ice) at a single freezing.

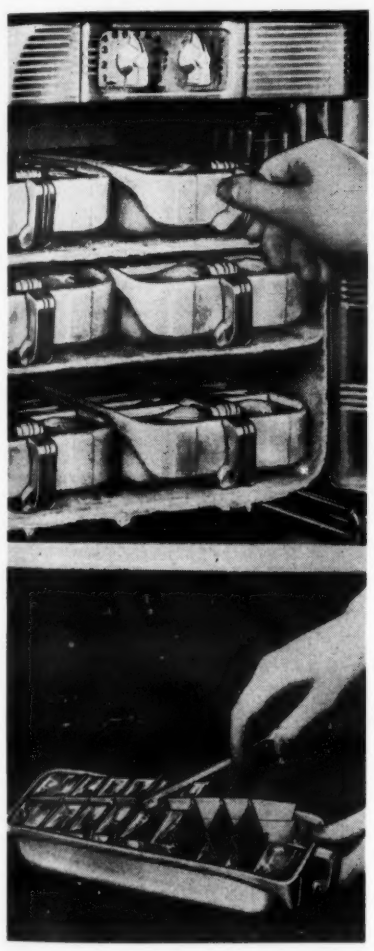
Kelvinator continues its five-year protection plan on the mechanical unit.

Lining Up the Main Attractions of the New Kelvinators



(Left) Kelvinator's "Polarsphere" hermetically sealed mechanical unit, used to power the 1939 line, is light enough to be carried by the housewife. (Center) Looking into the interior of an 8-cu. ft. model, with its glass-covered meat-keeping compartment, double crispers, new thermometer, and sliding, two-way adjustable shelves. (Right) Inside cabinet walls are flush with the door opening, and shelves extend across the full width of the cabinet, so that utmost space can be used and food inventory easily taken.

Easy Release



Easy ice tray and cube removal features Kelvinator's 1939 units. A twist of the wrist (above) loosens the tray, and a lift of the lever (below) frees part or all of its contents, as desired.

Chicago Chain Planning Suburban Affiliates

(Concluded from Page 1, Column 2)

Illinois towns to finance their accounts, do cooperative advertising, and give them the benefit of its buying advantages, Mr. Levinson said.

Rather than open new establishments, Good Housekeeping Shops plans to buy a number of appliance and radio stores already in operation here, Mr. Levinson revealed. Suburban stores to be affiliated with the company will continue to be independently owned, but will be mentioned in the store's advertising, and receive merchandising information and financing help.

Affiliated stores also will be supplied with the same merchandise as that purchased by the chain. The company will handle the General Electric refrigeration line this year.

Alexander McDermott is president of Good Housekeeping Shops.

5 Models In Universal Cooler 1939 Line

(Concluded from Page 1, Column 2)

exterior design. It includes many features of the deluxe line, most important of which is the meat conserver with a two-position shelf arrangement. It also has a sliding shelf as standard equipment.

The Deluxe series consists of three models of 5½, 6½, and 7½-cu. ft. capacity. Entirely different from the units in the Master line, these refrigerators are more massive and streamlined in appearance. Featured as standard equipment in this line are a door basket, a meat conserver, an illuminated thermometer and temperature selector panel, and an improved ice cube release tray.

A separately priced accessory package, consisting of a sliding storage drawer and crisper, also is available with the Deluxe line.

These new lines will first be shown to the trade in Chicago at the American Furniture Mart, Jan. 9 to 21, and at the Housewares Show to be held at the Stevens hotel Jan. 8 to 14. Pacific Coast showing will be during the Western Spring Market in San Francisco from Jan. 30 to Feb. 4.

As in the past, Universal Cooler this year will continue its merchandising policy of selling direct to retailers, Mr. Dennison said.

Commercial Sales Again Show Gain

(Concluded from Page 1, Column 4)

6,409 total reported by the same companies in that month in 1937.

Water coolers, bottled beverage coolers, and condensing units led the gains in shipments for the month, and ice cream cabinet sales were steady, although considerably under their November, 1937 total.

Shipments of commercial condensing units during the month totaled 4,720 units, as against 4,566 in 1937. Shipments of air-conditioning equipment of all classifications amounted to 359 units, compared to 466 units in November, 1937. This last includes self-contained and central-station type equipment.

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MERCHANT & EVANS CO.
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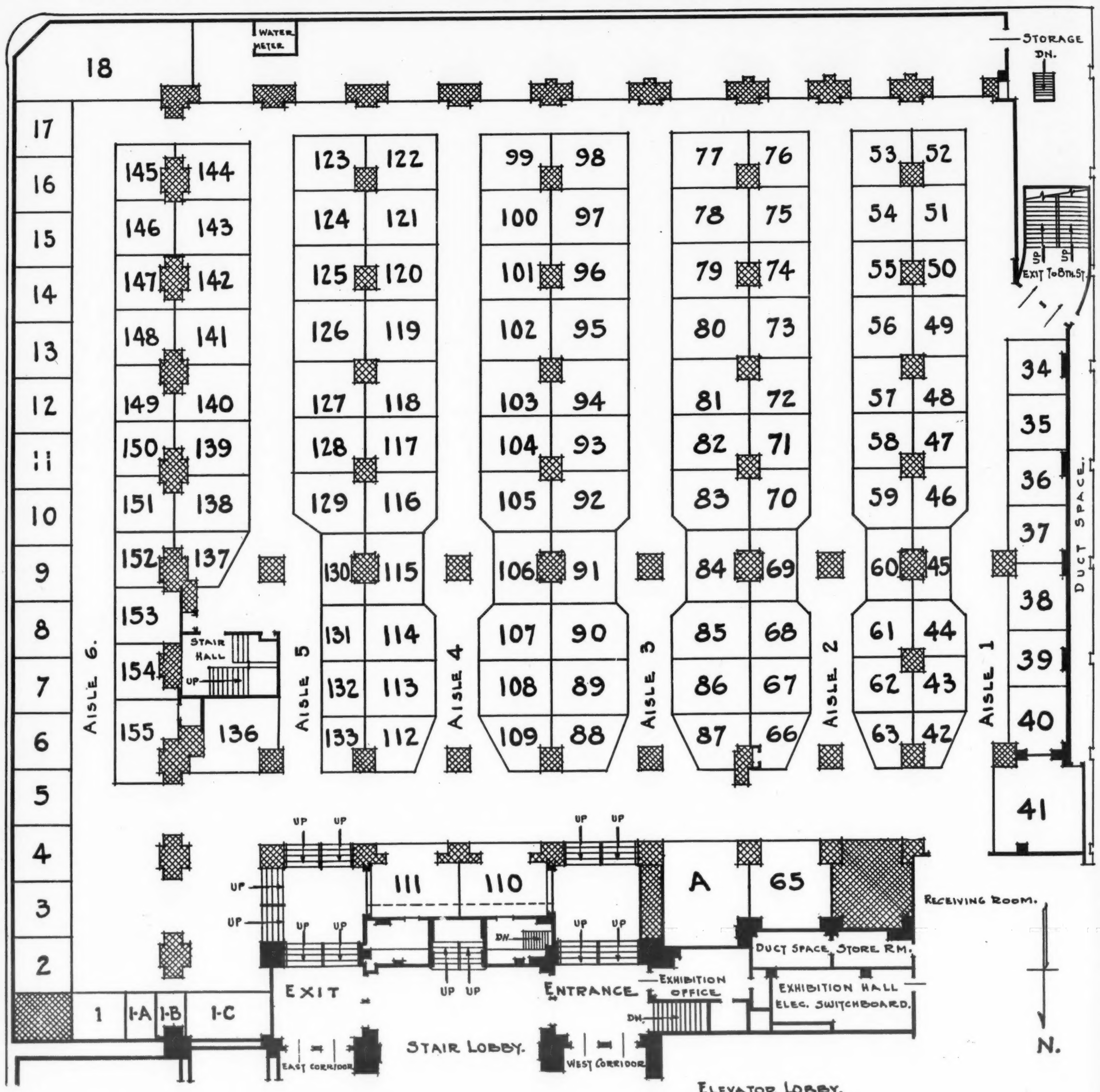
Key To New Products and Old Friends at Chicago Show

Floor Plan For the All-Industry Exhibition Opening Jan. 16 at the Stevens



	Booth No.
Acme Industries, Inc.	1
Jarrow Products Co.	1A
Arcade Mfg. Co.	1B
B. H. Clark Co., Inc.	1C
Aerovox Corp.	2
W. A. Hammond Drierite Co.	3
Modern Equipment Co.	4-5-6
Pacific Lumber Co. of Illinois	7
Refrigerating Specialties Co.	8
Arco Pipe & Fittings Div. of American Radiator Co.	9
Kold-Hold Mfg. Co.	10
The Weatherhead Co.	11
Starr Piano Co. Refrigeration Div.	12
Fairbanks, Morse & Co.	13-14
Reliance Refrigerating Machine Co.	15
Perfex Corp.	16-17
Refrigeration & Air Conditioning Institute	18-19-20
Kason Hardware Co.	37
Illinois Association of R.S.E.S.	40
Nickerson & Collins Co.	41
Temprite Products Co.	42
Thermek Corp.	53-54
Hubbell Corp.	56
Howe Ice Machine Co.	57
General Electric Co.	58-59
Aluminum Co. of America	60
Peerless Electric Co.	61
Tyler Fixture Corp.	62
White-Rodgers Electric Co.	63
National Refrigeration Supply Jobbers Association	65
Chicago Seal Co.	66
Thermo Air Conditioning Institute	67
Portable Elevator Mfg. Co.	68
Anemostat Corp. of America	69
Automatic Products Co.	70-71
Marlo Coil Co.	72-73
Refrigerating Engineering	74
The Mercoid Corp.	75-76
Ansul Chemical Co.	77-78
Alco Valve Co.	79-80
Penn Electric Switch Co.	81-82
Wolverine Tube Co.	83
McCord Radiator Mfg. Co.	84
Bush Mfg. Co.	85-86
Copeland Refrigeration Corp.	87
Detroit Lubricator Co.	88 & 109
Perfection Refrigeration Parts Co.	89
Dayton Rubber Mfg. Co.	90
Texas Co.	91
Utilities Engineering Institute	92
Dole Refrigerating Co.	93-94
Van Cleef Bros.	95
Victor Mfg. & Gasket Co.	96
Kerotest Mfg. Co.	97
Bonney Forge & Tool Works	98
Fedders Mfg. Co., Inc.	99-100
Mueller Brass Co.	101
E. I. du Pont de Nemours & Co., Inc.	102
Henry Valve Co.	103-104
Duro Metal Products Co.	105
Ranco, Inc.	106-107
L. H. Gilmer Co.	108
Business News Publishing Co. (Air Conditioning & Refrigeration News)	110-111
Virginia Smelting Co.	112
Tecumseh Products Co.	113-114
Chicago-Wilcox Mfg. Co.	115
Peerless of America, Inc.	116-117-118
Superior Valve & Fittings Co.	119
Riley Engineering Co.	120
Jas. P. Marsh Corp.	121
Electrimatic Corp.	122
American Injector Co.	123
Zenith Carburetor Co.	124
Wagner Electric Corp.	125
Spoehrer-Lange Co., Inc.	126
Mills Novelty Co.	127-128
McIntire Connector Co.	129
Gates Rubber Co.	130
Universal Cooler Corp.	131
Larkin Coils, Inc.	132
Maurey Mfg. Co.	133
Sherer-Gillett Co.	136
Imperial Brass Mfg. Co.	137-138-139
Minneapolis-Honeywell Regulator Co.	140-141
Commercial Coil & Refrigeration Corp.	142
The American Brass Co.	143
Air-Maze Corp.	144
Brunner Mfg. Co.	145-146
Deissler Machine Co.	150
South Bend Lathe Works	151
Jewett Refrigerator Co.	152
Rotary Seal Co.	153
Gale Products	154
Allen-Bradley Co.	155
Refrigeration Supplies & Parts Manufacturers Association	A

Commercial Service

Service Methods and Instructions For 'Three-Boiler' Soda Fountain Systems

Editor's Note: This article gives information on the "three-boiler" type of soda fountain, with an explanation of service problems and remedies. A description of the temperature regulating valve and its function in the "boiler" type of soda fountains also is presented. The article is one in a series on the servicing of soda fountains, ice cream cabinets, and counter-type freezers.

By Arch Black and Dean C. Seitz

'Three Boiler' Soda Fountains

Two methods of obtaining different temperatures for the storage of bulk ice cream and packaged ice cream have been described previously. Both of these systems; namely, the stub-brine tank system and the thermo-syphon system, made use of only one boiler in the ice cream brine tank. There is still a third method. This third method is illustrated by the hook-up shown in Fig. 1.

Two separate ice cream brine tanks are used, each having its own individual boiler. In Fig. 1, the first brine tank is shown on the left hand side of the creamer unit, and the second brine tank on the right hand side.

In this example, it is assumed that the packaged or brick ice cream is to be stored on the right hand side, and the bulk ice cream is to be stored on the left hand side. The conventional water bath and bottle storage compartment are located between the two ice cream cooling sections.

Since the bulk ice cream is usually stored at a slightly higher temperature than the packaged ice cream, it is necessary to use a pressure regulating valve in the suction line leading from the bulk ice cream brine tank boiler. The third boiler which is located in the conventional water bath is likewise controlled by means of its own pressure regulating valve, installed in the suction line leading from the boiler.

The settings for the low pressure control switch are exactly the same as are used with any standard two-boiler creamer unit (1 lb. to 3 lbs. cut in and 16 lbs. to 17 lbs. of vacuum cut out). The addition of the third boiler for the bulk or package ice cream with its regulating valve in no way changes the basic control setting.

To obtain the desired temperature in the bulk ice cream brine tank, it is merely necessary to adjust the pressure regulating valve controlling the bulk ice cream tank boiler. The valve in this case should be adjusted from 6 inches to 9 inches before being installed. This cannot be done after installation, but an adjustment can be obtained by use of a thermometer in the brine. Usually the temperature should be 5° higher than the bulk but the adjustment should be made to suit the customer's requirements. This pressure regulating valve is identical with the pressure regulating valve used on the sweet water bath boiler.

No additional service problems are presented to the service engineer with this hook-up than are found in any two-boiler hook-up. The only point to be kept in mind is the fact that the range of the pressure regulating valve used on the bulk ice cream brine tank boiler must be low enough to maintain an average refrigerant temperature approximately 8 to 10° below the desired brine temperature.

A variation of the three-boiler creamer unit is illustrated by Fig. 2. In Fig. 1 the creamer unit consisted of two ice cream tanks separated by a bottle storage and water bath. In Fig. 2, the creamer unit consists of two water cooling and bottle storage compartments separated in the middle by a single ice cream brine tank. Each water bath boiler has its own individual pressure regulating valve to control the amount of ice formation around the water bath boiler.

The settings of the low pressure control switch are exactly the same as those used on a standard two-boiler creamer unit. The service problems are likewise the same as those encountered on the two-boiler creamer unit.

Thermostat Regulating Valve

The need for accurate temperature control in the various compartments which make up a soda fountain creamer unit and the other refrigerated fixtures which are commonly multiplexed with a creamer unit, necessitates the use of several different types of refrigerant vapor control valves. Up to this point, in these articles, only one type of refrigerant vapor control valve has been discussed; namely, the pressure regulating valve.

As explained, the pressure regulating valve has been used for a number of years by the majority of the soda fountain manufacturers as the means of controlling the amount of ice formation on the boiler on the water bath.

Within the past several years, the pressure regulating valve has been replaced in the majority of cases by a temperature regulating valve.

Fig. 3 illustrates a typical cross section of a temperature regulating valve. They are usually manufactured for two or more temperature ranges, making it necessary for the service engineer to know the range of the valve he is using, in order to make certain that it is perfectly adapted for the application. For example, one manufacturer makes temperature regulating valves in three ranges, the first range is from —15° F. to +15° F., the second range is from +10° F. to +30° F., the third range is from +28° F., to +40° F.

Valves designed for the lowest range of temperature such as —15° F. or +15° F. are used in multiplexing two or more ice cream brine storage tanks on one condensing unit, or when multiplexing an ice cream dispensing cabinet with a brine tank section of a creamer unit.

In the three-boiler creamer unit illustrated by Fig. 1, a low range temperature regulating valve could be substituted for the pressure regulating valve installed in the suction line leading from the bulk ice cream brine tank if the boiler is fitted with a bulb well. These applications are typical of the use of a low range valve.

The medium range temperature regulating valve such as from +10° to +30°, may be used wherever the temperature of the fixtures must be maintained between 10° F. to 30° F.

Such an application is the control of the ice formation on the boiler installed in the water bath; another is the control of the temperature in a salad table or sandwich preparation table.

In the case of the valve being used to control the ice formation, the bulb must be rigidly fastened approximately 1 inch from the boiler, and the valve adjusted to form a thin coating ofice over the bulb. The most satisfactory location for the valve itself is below the work board at the end of the creamer unit.

The high range temperature regulating valve, such as +28° to +40° is used to control the temperature of fixtures which are to be maintained above 30°, such as temperatures in salad tables or sandwich tables.

There is no case where a temperature regulating valve should ever be used to control the temperature of any evaporator or boiler which is expected to automatically defrost.

The temperature regulating valve should never be confused with a snap action valve which may be set to automatically defrost. Temperature regulating valves are throttling valves and tend to be neither wide open nor completely closed.

The temperature regulating valve offers a more sensitive control of low variations than the pressure regulating valve. It operates wide open during heat loads or during an absence of ice formation on the water bath boiler. It throttles only after the desired ice formation has been obtained, or the load has been reduced, and is quite sensitive to load variation.

All temperature regulating valves are operated by means of the gas pressure in the power element (bulb). As a result the refrigerant pressure in the system does not effect the operation.

When the bulb temperature is lowered, the pressure of the gas within the bulb is reduced, thus reducing the pressure exerted on the top of the bellows. The valve then starts to close. As the bulb warms up, the gas pressure in the bulb increases, the valve opens.

In all cases, the valve body must be kept at a higher temperature than the bulb. At the same time the valve body must be kept free of frost and ice.

These valves are installed in the same manner as the pressure regulating valve, except that they should be close enough to the boiler to permit the running of the capillary tubing connecting the valve and the thermostatic bulb. A wire clamp is usually used to mount the bulb and space it properly from the side of the boiler.

From the description of two and three-boiler creamer units in previous articles, a temperature regulating valve may be substituted for a pressure regulating valve shown in each of the diagrams and pictures without in any way affecting the cycle of operation or the setting of the controls.

It need merely be kept in mind that a pressure regulating valve will be found as the means of controlling ice formation on the older soda fountains, and a temperature regulating valve on the newer two and three-boiler fountains.

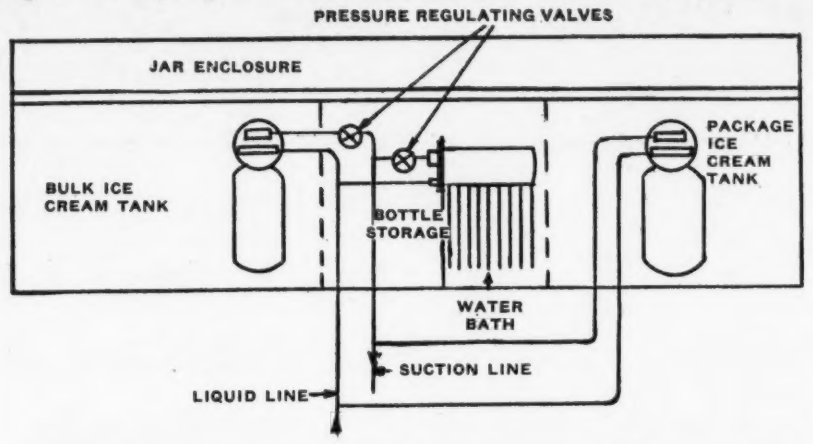
On the question of service, two points must be added to the former discussion of water frozen or water too warm.

1. In the case of water frozen, the engineer must check to make certain that the bulb of the temperature regulating valve is properly mounted approximately 1 inch from the boiler, under the water level. A thin ice formation should be formed over the bulb before the valve closed. If the bulb is not properly located or if it is dangling in the water bath, it is most likely that the entire bath will be frozen solid, for the valve will remain open until a coating of ice is formed over the bulb itself.

2. In the case of water too warm, it is necessary to make certain that the body of the valve is not installed in a colder location than the bulb. If the valve body is permitted to become colder than the bulb, the charge will condense in the power element, making the valve completely inoperative and holding it shut.

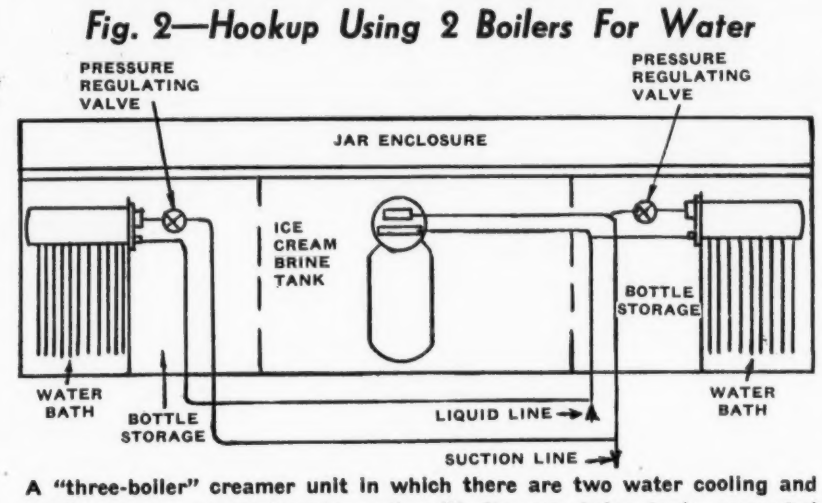
The proper location for the valve is outside of the refrigerated fixtures, under the drain board or work board.

Fig. 1—Hookup For 2 Different Ice Cream Temperatures



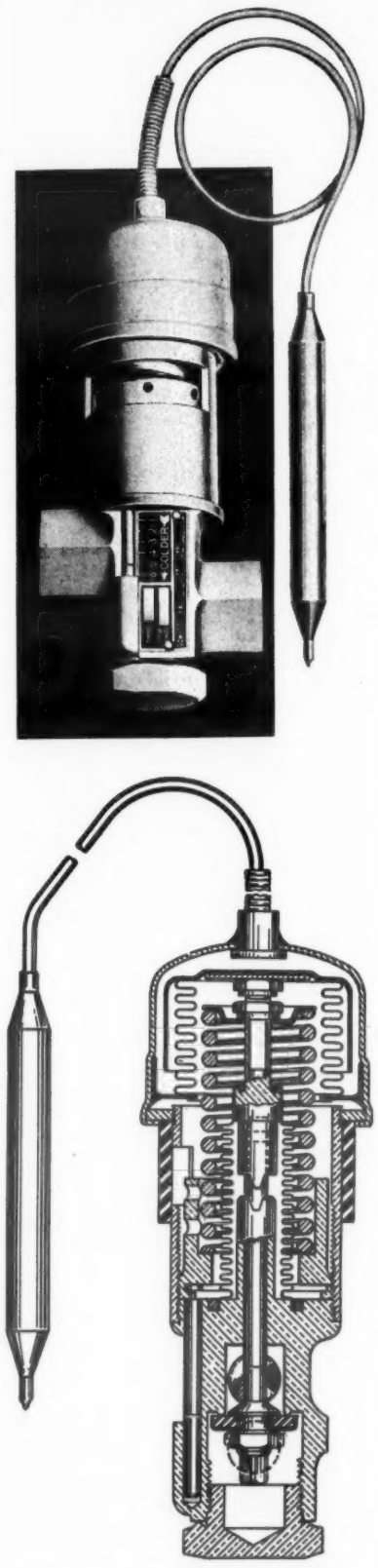
Different temperatures are obtained for the storage of bulk and packaged ice cream by the use of two separate ice cream brine tanks in the "three-boiler" type of soda fountain. Hookup for such a system is shown in this drawing.

Fig. 2—Hookup Using 2 Boilers For Water



A "three-boiler" creamer unit in which there are two water cooling and bottle storage compartments, each with its own brine tank, separated in the middle by a single ice cream brine tank.

Figure 3—Temperature Regulating Valve



(Top) Exterior view of a temperature regulating valve used in soda fountain work. (Below) Drawing showing construction of temperature regulating valve.

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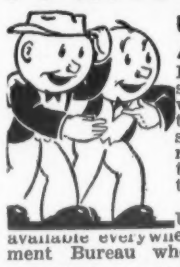

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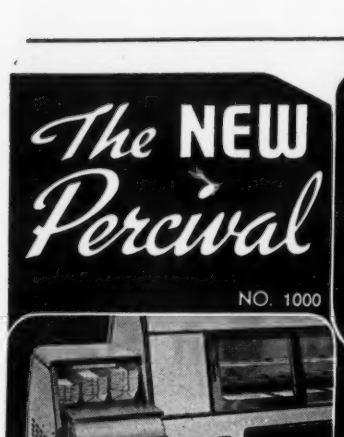

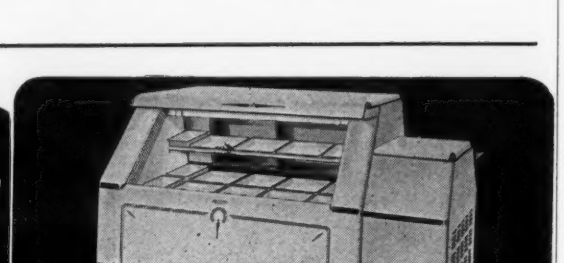

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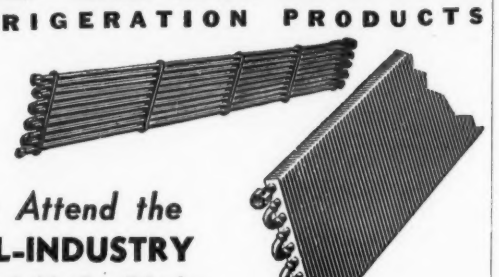

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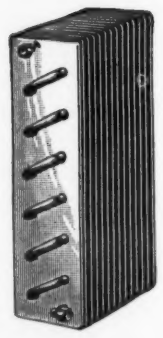

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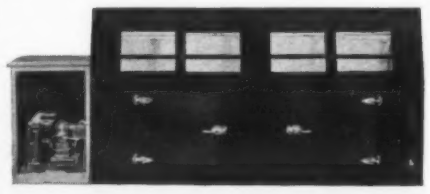

Rear View of Unitized Case

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Foreign News

Refrigeration Market Is Small In Mexico, Food Is Queer, But Bull Fights and Lovers Are Picturesque, Report the Mel Knights

Primarily because almost all of the wealth in Mexico is confined to 10% of the population, the refrigeration market offered by our neighbor to the south is quite small and not very promising, believes M. W. Knight, sales manager for Peerless of America, Inc.

Mr. Knight bases his opinion on what he saw and learned during his recent tour through Mexico. General living conditions of the bulk of the public are far behind those of the United States, he declared.

Compared to the average American, the average Mexican lives a life of near-poverty. He has little or no formal education, he has few clothes, he has a very small income, his home is small and plain, he enjoys none of the "luxuries" of modern life.

His diet varies little from day to day, and consists almost entirely of plain, cheap fruits, vegetables, and meats.

Refrigeration not being in general use, most meat is eaten the same day, or the day after it is killed. In hotels and restaurants, of course, there is refrigeration, either mechanical or by ice.

"Ice is the most popular means of refrigeration down there at the present time," Mr. Knight said.

CARRY FREEZERS ON HEAD

He told of occasionally seeing men with old-fashioned ice cream freezers on their heads, carrying refrigerated goods to consumers.

Mexico City and Monterrey, said Mr. Knight, both are comparatively modern, up-to-date cities, with most of Mexico's wealth centered in them.

Mexico City itself is about 8,000 ft. above sea level, Mr. Knight pointed out, and has a very mild climate, with cool evenings.

In these two cities, and also in Guadalajara, Tampico, and Torreon, there are a number of refrigeration companies, some independent, others branches of American firms.

Among the latter, Carrier-Brunswick, General Electric, Westinghouse, and Brunswick-Balke-Collender are well represented.

FIRMS IN CAPITAL

Bulk of Mexico's refrigeration firms are in the capital city, their business consisting principally of selling and servicing household and commercial refrigerators.

Quite a few of the refrigerator dealers also sell other major products, such as radios and automobiles. In fact, there are a great many radio dealers in Mexico City alone.

Of course, Mexico City is no hamlet. Its population is over 1,000,000. Populations of other cities in Mexico are: Guadalajara, 178,000; Monterrey, 132,000; Puebla, 115,000; Tampico, 68,000; Torreon, 66,000; Veracruz, 69,000; San Luis Potosi, 73,000.

Population of the entire country is placed at more than 16,500,000.

Judged solely from the standpoint of need, Mexico should offer a vast potential market for electric refrigeration. The climate is hot enough to make refrigeration a necessity, and the food problem is so acute that something ought to be done to provide a means for safe cold storage.

MRS. KNIGHT REPORTS

The Mexican tour of Mr. and Mrs. Knight lasted a month, and stretched nearly 6,500 miles from Chicago to Chicago. Back home, Mrs. Knight wrote out a lengthy report of the trip, and Mr. Knight has very generously loaned a copy of it to AIR CONDITIONING & REFRIGERATION NEWS so that excerpts could be published which will present a good picture of Mexico today.

"There is practically nothing from Laredo to Monterrey (150 miles). Just a few huts and one or two tiny settlements."

Thus does Mrs. Knight describe what she saw between Laredo, on the Texas side of the border, and old Monterrey, metropolis of northeast Mexico.

"But when you arrive at Monterrey," she continues, "it is as though you were in a different world. You certainly feel lost.

"After we checked in we went to see the American Consul about the roads. He urged us not to go on by car as he said the roads might wash out again any time, and even then the going was bad.

"They put your car into a high truck to get through one place, then on an old barge to be pulled across the river by a rope, and after that they hitch oxen to your car to pull you through a muddy place. The rainy season is from May to October, and most any time you might be caught by cave-ins along the road.

'CONDITIONS UNSPEAKABLE'

"Conditions in the towns we came through were just unspeakable," Mrs. Knight writes of the train ride from Monterrey to Mexico City. "The dining car garbage was dumped in several small towns, and the children all rushed for it and fought for the big pieces.

"Very few people have sandals of any sort. Nearly everyone goes barefooted, and their feet and ankles are all callouses.

"Through the country it was nothing to see one single room hut occupied by about 10 children and grown-ups, plus a burro, a dog, some chickens, and maybe a goat or pig.

"Some have beds, but lots of them just roll up in a blanket. The little girls mother the younger ones from the time they can carry the baby.

"Down there you see nothing but tiny burros for hauling, and the loads they carry seem incredibly heavy for them. People will take a burro miles out in the desert and possibly walk all day to obtain a load of sticks for wood that we could buy for a few cents.

"If the poor people of our country had to live that way, it would kill them.

EAT FROM WINDOWS

"Of course, they made all sorts of things to sell at the trains, and everyone comes down to see the train go through. Also, they sell fruit and other food. No one from the coaches ever comes to the diner to eat. Come to find out, they buy what they need through the train windows.

"I wish I could describe the food, but it is impossible. They eat a lot of queer food though."

Mrs. Knight points out that cactus is planted in Mexico just like any other crop would be, for it provides "Poka" (a native drink), "Tequila" (a liquor), a much-used medicine, and cattle-feed during droughts, and also a fruit which is much-liked by Mexicans.

"To get back to the train again," writes Mrs. Knight, "some keep goats near the tracks, and when it is train time an old woman will milk a goat into a container of some sort and then she has a big dipper and sells the milk to the train passengers. Of course, one after another uses the cup without it being washed.

INDIANS NO LIKE

"At night on the trains they pull the shades, and we asked the steward if he would please tell us why. He said that the Indians had not liked having the train near them, and often at night they would throw rocks through the windows. They pull the shades to help protect you from glass and rocks."

In Mexico City, Mr. and Mrs. Knight went to a bull fight, and Mrs. Knight describes it in her letter.

"They kill six bulls every Sunday at a fight. Needless to say, neither Mel nor I liked it—but we felt that a trip to Mexico without seeing a fight would be like going to Colorado Springs and not seeing Pike's peak.

"The fights last from 4 to 6 p m. The bull comes out with a colored ribbon stuck on the back with a small arrow. He rushes, and the man swings his cape gracefully, and that part is really nice, and you admire the man for his courage in not moving a muscle when the bull fairly grazes him.

"But you have only a few minutes of this and then it's wicked from that point on.

"First a horse and rider come out. The horse is padded and blindfolded. The rider has a long pole with a pointed end. They coax the bull to rush at the horse and ram the pole into his back. The bull draws back to get away from the pole.

"Then another man on foot comes along and rushes at the bull, and just as he is a foot away from the horns he side-steps enough to miss them and rams two sticks (each colored and about 3 feet long and with spear tips) into the back of the bull's neck.

"Two other men follow this man, and each leaves sticks in the bull's neck. That makes six sticks in all. After that the toreador comes out with his red cape and sword. He is the actual killer.

AT THE KILL!

"He plays with the cape a few minutes, letting the bull charge at it. By now the bull is bleeding freely. Then the toreador rushes the bull and the bull rushes him and the sword is run into the back of his neck and down through the heart.

"One bull was killed instantly that way, and the toreador was allowed to cut off an ear as a trophy, which is quite an honor. Sometimes just before a toreador makes a killing, he walks around and looks up at the crowd, and if he throws his hat to someone that person is supposed to give him a gift after the kill."

Mrs. Knight proceeds to describe a quaint Mexican courting custom.

"There are a lot of small parks, just a block square. If these have a band stand, then on two or three nights a week they have concerts, and the young girls walk one way around the park and the boys the other way.

"They flirt, and then if a fellow likes a girl—or thinks he does—he follows her home, and the girl goes inside and then comes to an open window which is all iron bars, and from there she can talk to the young man.

"After a while if the girl likes him, she asks him to meet her family. If he does meet them, it means they are engaged."

Most of the family washing is done up on the roofs in the city and out in rivers and creeks in the country. Some of the city parks have public washing places where the women congregate to do mass laundry.

"There are some of the loveliest homes in Cuernavaca, as they claim the climate there is ideal the year around.

"It is nothing to see a man running down the street balancing a huge wicker basket on his head, or maybe an ice cream freezer or a barrel.

"If a street peddler has many items to sell, he usually spreads a piece of cloth on the sidewalk and puts his wares on that. In walking through downtown, you have to watch your step to dodge all these stands.

BRING OWN FOOD

"We had been advised to take canned meat, vegetables, and fruit with us to Mexico. Also, we were told to take a gallon thermos of water. We thought it a rather silly idea when we started out, but anyhow we took $2.00 worth to have just in case we were caught by cave-ins on the highway and had to wait a day or so before we were dug out.

"Then, of course, when we got to Monterrey it didn't seem worth while to take food, so we left nearly all of it in the car, taking only two cans of meat and a box of crackers.

"Well, after three days in Mexico City we opened the meat and crackers for dinner one night, and Mel and I both agreed nothing ever tasted so delicious."

Note: In the next issue more of Mrs. Knight's letter will be published. You will enjoy reading her interesting descriptions and intimate glimpses of the Mexican people and their country.

Service Methods

Thorough Understanding of Fundamentals Plus Knowledge of Certain Special 'Tricks' Is Key To Servicing Ice Cream Cabinets

BUFFALO—"Servicing ice cream cabinets requires 85% common sense and 15% refrigeration knowledge," Everett J. Newcomer, Mills Novelty Co., told the Refrigeration Service Engineers Society when he addressed the organization's annual convention here recently.

Nowhere in the refrigeration business, Mr. Newcomer said, is the necessity for sound reasoning more important than in ice cream cabinet servicing.

"Before any service engineer should attempt to service this type of equipment, he should have a thorough understanding of the functions of refrigerants, and oils, at the low temperatures encountered in dispensing and hardening cabinets; and particularly should he know and follow the precautionary measures necessary.

"In performing service operations on ice cream cabinets, and particularly those used for hardening, the most important thing to avoid is allowing moisture to enter the system.

"Never, under any circumstances, should a line be left open that is sweating or frosting, as to do so will allow moisture condensation in the line and plenty of trouble will result for the service man.

IDEA TO PREVENT MOISTURE

"A small amount of refrigerant bleeding through all lines while they are being disconnected is a very good insurance policy against the entrance of moisture, and the small amount of refrigerant lost will pale into insignificance compared to the cost of drying a wet system.

"In duplex systems where a hardener and dispensing cabinet are operated from the same condensing unit, the usual practice is to install a check valve in the suction line of the lower temperature fixture, in this case the hardener.

"The purpose of this check is to prevent the entrance into the hardener coil of the superheated vapor from the dispensing cabinet while it is flowing into the common suction line."

Mr. Newcomer proceeded to explain how to dehydrate an ice cream cabinet system properly.

DON'T CHARGE CHEMICALS

"Charging chemicals into a refrigerating mechanism to relieve a bad case of moisture is highly objectionable," he pointed out. "In the first place this will in no way dry the system, and this moisture must be removed for the continued trouble-free operation of the machine; and secondly, the known corrosive effects of these chemicals will in a short time cause a more serious service problem.

"Dryers charged with a proven drying agent will do a lot of good if installed in the liquid lines, and would be more efficient if used in the suction lines as vapor dryers.

DRY IN LIQUID PHASE

"However, drying in the liquid phase is recommended, as in the majority of cases in ice cream service, the valves will freeze up before the vapor dryers have had a chance to complete their work.

"This method of drying is satisfactory where a small amount of moisture is present, but when large concentrations are encountered the labor cost of call-backs to thaw out valves and change dryers makes it impractical.

"The recommended procedure with very wet systems is: remove all the refrigerant and oil from the system and warm the coils and lines to room temperature. The compressor, receiver, and expansion valves should be removed and thoroughly washed out with carbon tetrachloride. All lines and the coils should be blown out with dry CO_2.

"After the machine has been assembled and the oil charge replenished, a pressure of at least 30 lbs. should be built up, and the system checked for leaks.

"When all leaks have been repaired, a new gas charge should then be added. Placing a dryer in the liquid line at the receiver is recommended to catch any small traces of moisture which may have been left, but be sure to remove this dryer as soon as possible and certainly within one month.

ALWAYS TEST SEAL

"Make a habit of running your hand under the seal hub of all compressors on routine service calls, and many times a seal leak will be shown long before it actually leaks gas. An oil slick at this point shows a slight leak is present, and quick repairing will save many hours later.

"Service engineers are sometimes confronted with the possibility of moisture, a partially plugged coil, or a sticking expansion valve causing the trouble, and not knowing exactly which.

"A comparatively simple method of testing for all three conditions has been found, and all the equipment necessary for these tests is an ordinary hand valve, two gauges, and a few fittings.

"In making up this test unit, a compound gauge is placed in a line leading from one side of the hand valve, and a pressure gauge is connected in a line leading from the other side of the valve.

USING TEST UNIT

"This unit is then connected in place of the expansion valve, by connecting the liquid line to the line wherein the pressure gauge is connected and connecting the coil to the line with the compound gauge.

"The hand valve should be cracked slightly and operated as a manually operated expansion valve. If moisture is causing the trouble, the valve will freeze up just as the expansion valve would do, and the difference in readings between the compound gauge at the valve and at the compressor will be only slight.

"A partially plugged coil will make itself known when the reading of the compound gauge at the compressor is extremely low, and the reading at the valve comparatively high. The system will function satisfactorily with this hook-up if the trouble is a sticking expansion valve.

"Thermostatic expansion valves are widely used in ice cream cabinets, and in the vast majority of cases are correctly set at the factory before shipment. No adjustments should be made unless the service engineer is thoroughly familiar with the methods of testing and setting these valves for their correct superheat.

"These tests are, however, easily made in the field, and the equipment required is usually found in the average service engineer's shop, making it unnecessary to purchase additional tools.

VALVE SETTINGS

"Most valve manufacturers will be glad to furnish information regarding superheat settings for most applications.

"Thermostatic expansion valves set to operate at 10° superheat will be found most satisfactory for ice cream dispensing and hardening cabinets.

"Recently a dispensing and hardening cabinet combined, so arranged that it can be instantly changed from one to the other, was introduced to the industry.

"Its operation differs greatly from the conventional types of cabinets we have been servicing in the past. The cabinet is divided into separately insulated compartments of 20 gallons each. No holdover solution is used, nor does the coil touch the cabinet linings; instead, a single, bare-copper, continuous-tube coil extends the full length of the cabinet and is placed in a special chamber on one side.

"Each compartment is baffled, with the return air duct to the coil chamber at the top and blower outlets at the bottom.

FORCED-AIR UNIT

"Forced air circulation is maintained by a series of blowers on a line shaft, driven by a small motor. Adjustable shutters are provided for the blower outlets in order that the operator may control the air circulation and consequently the amount of refrigeration in each compartment, thereby maintaining different temperatures if desired.

"Partial insulation of the coil is affected at the point it enters each compartment in order to minimize the circulation of air between compartments.

"A thermostatic expansion valve is used with a solenoid connected in the liquid line just ahead of the valve. Both the solenoid and the motor driving the blowers are operated by a thermostat.

"When the cabinet is used as a hardener the thermostat is shorted out by a time switch which is set manually for the number of hours hardening necessary. This keeps the condensing unit in operation continuously during the hardening operation.

"When the time switch trips off at the end of the hardening period the thermostat is again cut into the circuit, and due to the low temperature of the control compartment the machine will remain idle until the control compartment warms up to the cut-in point as set on the thermostat. Hardening with automatic return to dispensing is thus accomplished.

"Defrosting should be done about once each week depending upon conditions. One compartment may be defrosted at a time, or all may be defrosted at once if desired.

"A toggle switch on the control panel marked 'normal' and 'defrost' is placed in the defrost position, which opens the solenoid circuit without stopping the blower motor, and the lids are then removed allowing room air to be drawn over the coil.

"The accumulated frost then melts, and is removed as water with a sponge. After wiping dry, the defrost toggle switch is returned to the normal position, and the cabinet is pulled down to temperature.

THERMO WATER VALVE

"The thermostatic water valve is a piece of equipment comparatively new to the refrigeration industry, and should come in for some discussion.

"This valve differs in several ways from the conventional pressure-operated valve. In the first place, the valve is controlled by outlet water temperature rather than by head or receiver pressure. The feeler bulb is about 13 inches long, and all of it must be inserted into the condenser proper, or in other words, it must be far enough in the condenser to be beyond the junction of the hot gas from the head, and the condenser water outlet."

Mr. Newcomer paused to explain that he was referring to a condenser using counterflow water circulation.

"Wide variations of water pressure do not seem to affect its operation," he continued, "and absence of chattering and pounding is quite apparent.

"The bellows case must be kept at a temperature always above that of the feeler bulb, or condensation of the charge in the bellows will take place, and render the valve inoperative.

CUTS CONDENSATION

"Clamping the bellows case into a recess of the discharge manifold has proven an effective method of eliminating this condensation.

"Sluggish operation of the valve is usually caused by having only part of the feeler bulb inserted in the condenser, and this might also cause short-cycling from the high-pressure cut-off, if the valve does not open quickly enough after the compressor starts to keep the head at a normal pressure.

"Air in the system will cause the valve to open and close quickly but will not prevent its closing.

OBTAINING SETTING

"Its setting is obtained by placing a thermometer in the discharge water stream and maintaining an outlet temperature of approximately 95 to 100° F. This is the only way it can be done.

"The cut-off point will be about 3° lower than the operating temperature."

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Centrifugal Machine Used For Largest Installation In the Philippines

MANILA, P. I.—Eighty thousand feet of conditioned air per minute will flow into the new Heacock building here from the largest air-conditioning system in the Philippine Islands.

The new Heacock building is a six-story reinforced concrete structure, combining a department store and radio display room, replacing the old Heacock building, which was damaged by an earthquake.

A central station air-conditioning system serves the entire building, including a bargain sales floor located in the basement of the store. The building is one of the few in Manila that have been constructed with a basement.

Water is cooled to 45° F. by a 170-ton centrifugal refrigerating machine. The cooling load includes 750 people and a constant supply of 20% outside air, engineers who installed the system explained.

Soundproof rooms in the building, used for demonstrating radios, are totally enclosed, the only ventilation being supplied by the air-conditioning system.

Condensing water for the system is conserved by a forced-draft cooling tower, leaving the roof of the building available for use as a roof garden.

THE BUYER'S GUIDE

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Air Conditioning

Characteristics of Asbestos Ducts Are Determined In Mellon Institute Study

NEW YORK CITY — Comparisons of the characteristics of metal ducts and asbestos ducts for use in air-conditioning systems were given in a paper prepared by R. H. Heilman of the Mellon Institute of Industrial Research and R. A. MacArthur of the Philip Carey Mfg. Co. for presentation before the recent annual meeting of the American Society of Refrigerating Engineers here. Mr. Heilman presented the paper.

The asbestos insulating duct is available in either round or rectangular cross-section, Mr. Heilman explained. Lengths are assembled from units 3 ft. in length. Each unit consists of a hard inner tube or core 3/16 inch in thickness, made of laminated asbestos paper, and an outer jacket closely fitted on the core and made of cellular asbestos paper wound in layers to the proper thickness.

BONDING AGENT

The bonding agent used in laminating both core and jacket is a newly developed heat and water-resistant inorganic adhesive. In fabricating lengths from units, the core of each unit is pulled partially out of its jacket and telescoped into the jacket of the adjacent unit.

Mr. Heilman presented a chart which may be used to calculate the friction losses in either rectangular metal or round and rectangular asbestos ducts. The capacities for round ducts at various velocities may be read from the chart. While the friction losses for rectangular ducts of various sizes and at various velocities may be read from the chart, the capacities are to be calculated from the cross-sectional area by obvious methods.

LOSSES IN ELBOWS

The friction losses in elbows of various types were studied briefly, Mr. Heilman stated. Two 8-inch round 90° elbows in series at the end of an 8-inch duct caused a loss of 212% of the velocity head. The addition of a 6-foot length of duct on the downstream end of the turns increased the velocity from 1,890 to 1,930 feet per minute; at the same time the static pressure upstream from the turns dropped 12%.

Narrow way turns of high aspect ratio were found to be somewhat better than those of low aspect ratio. At 1,200 feet per minute velocity, a 4 x 17½-inch asbestos 90° turn equipped with one turning vane, aspect ratio about 10, had a loss of 14% of the velocity head, this loss increasing to 18% at 2,150 feet per minute. The corresponding loss in a broadway turn, effective aspect ratio about 3, was about 30%.

One rather poorly made 8½ x 8½-inch asbestos 90° turn, effective aspect ratio about 5, had a loss of 22% at 1,000 f.p.m., and 31% at 2,000 f.p.m.

LOSSES IN TURNS

The losses in turns and fittings depend to a large extent on their environment, and the same turn may have losses varying, as it did for one turn tested, from 17 to 85% of the velocity head. It is believed that turns well downstream from obstructions or other causes of poor air distribution will always show minimum losses.

According to Mr. Heilman, the thermal conductivity values obtained on samples of asbestos ducts were 0.622 B.t.u. per square foot per hour, per inch of thickness per degree Fahrenheit, at a mean temperature of 50° F. and 0.707 B.t.u. at a mean temperature of 150° F. The conductivity at mean temperatures between these two values is a straight line function of the mean temperature.

The thermal transmission coefficient U for various temperature conditions, said Mr. Heilman, can be calculated from the standard formula,

$$U = \frac{1}{\frac{1}{f_i} + \frac{L}{k} + \frac{1}{f_o}}$$

where

U = B.t.u. per sq. ft. per hr. per °F. difference in temperature between the air inside and the air outside the duct.

f_i = film conductance inside the duct, B.t.u. per hr. per sq. ft. per °F.

f_o = film conductance outside the duct, B.t.u. per hr. per sq. ft. per °F.

k = conductivity of the duct, B.t.u. per hr. per sq. ft. per °F. per inch of thickness.

L = thickness of the duct, inches.

It will be found that f_i will vary considerably with the velocity and the size of the duct. An average value of $f_i = 4$ has been used for the calculations in this paper. The outside surface conductance f_o will vary somewhat with the size of the duct for small ducts and for metal ducts it will vary considerably with the emissivity p of the outside surface of the duct. Values of f_o for various conditions can be calculated from data given by Mr. Heilman and others.

EMISSIVITY VALUES

Uncovered metal ducts usually tarnish and become dull in a comparatively short time, this tarnishing increasing the emissivity value considerably over that of bright metal, said Mr. Heilman. Previous emissivity tests conducted on tarnished galvanized iron gave an emissivity value of 0.53. Horizontal metal ducts will ordinarily be covered with layers of dust on their top surfaces, and that part of the duct will have a very high emissivity value. Some metal ducts are covered with asbestos paper, which has an emissivity of approximately 0.93.

It is often necessary in air-cooling installations to know the thickness of asbestos or insulation which will prevent sweating or condensation on the outer surface of the duct. Sweating will be prevented when the thickness of the duct is sufficient to raise the temperature of the outer surface to a point slightly higher than the dewpoint for the corresponding air temperature and relative humidity. The difference in temperature between the air and the dewpoint for various humidities can be readily taken from a psychrometric chart.

Table 1 has been calculated for rectangular asbestos ducts carrying air at 50° F. for temperature differences between the air inside and outside the ducts of 20 to 50° F., or corresponding to room temperatures of 70 to 100° F.

SOUND DATA

The attenuation of sound in metal and asbestos ducts of various sizes and shapes has been measured by "practical" methods, said Mr. Heilman. All the data considered desirable for proper evaluation of the attenuation in ducts of all dimensions have not as yet been obtained, and the following results are to be considered only indicative of general behavior.

The most important sound reduction is that in ducts with air flowing through them. The attenuation of sound in a duct may be measured for any sound frequency, but the attenuation of sound caused by the fan and the airflow cannot be evaluated from data obtained by the use of fixed frequencies without knowledge of the frequency distribution in air and fan sound, and this only when no sound is created in the duct and fittings. It is doubtful that the latter condition is ever met in ducts with appreciable airflow.

The improvement in sound reduction of asbestos ducts over metal ducts is substantially constant with velocity said Mr. Heilman. At a velocity of 1,000 f.p.m., the sound levels obtained at the outlet of the ducts were lower with asbestos ducts than with metal ducts by the following amounts: 11 x 13-inch ducts, 6.0 decibels; 5½ x 8½ inches, 5.7 decibels; and 2½ x 11 inches, 8.8 decibels. For certain intensity, at a velocity of 1,000 f.p.m., the apparent loudness in the room was,

11 x 13-inch asbestos duct loudness about 65% of that with metal duct.

5½ x 8½-inch asbestos duct loudness about 60% of that with metal duct.

2½ x 11½-inch asbestos duct loudness about 40% of that with metal duct.

FITTINGS REDUCE SOUND

Fittings will in general contribute to the reduction of sound. Data published previously show that an asbestos 90° elbow of inside dimensions 5½ x 8½ inches attenuated sound of frequencies 250, 500, and 1,000 cycles 7, 11, and 14 decibels, respectively, more than a metal elbow of the same cross-section and of radius ratio 1.5, the metal elbow reducing the sound practically not at all.

An 8½ x 8½-inch asbestos elbow reduced the sound 7.8, 7.2, and 12.2 decibels at the respective frequencies. With airflow, the 5½ x 8½-inch asbestos elbow reduced sound at the outlet 4 and 7 decibels more than the metal at 500 and 1,000 f.p.m. At ordinary velocities valuable sound reduction may be expected from asbestos duct systems containing several fittings.

There are no appreciable resonance effects with asbestos ducts and sound pickup from the environment, and particularly the transmission of such sound, is much less than in metal ducts, Mr. Heilman declared.

Table 1—Thickness of Asbestos Duct to Prevent Sweating

Percent Relative Humidity	Difference in Temperature Between Air Inside and Outside of Duct						
	20° F.	25° F.	30° F.	35° F.	40° F.	45° F.	50° F.
60	½ in.	½ in.	½ in.	¾ in.	¾ in.	1 in.	1 in.
70	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	1½ in.	1¾ in.
80	1¼ in.	1½ in.	1¾ in.	2 in.	2½ in.	2¾ in.	3 in.

Air-Conditioning Is One Feature of Ultra-Modern Argentine Home

BUENOS AIRES, Argentina—Year-around air-conditioning equipment, including an automatic oil furnace, a 5-hp. condensing unit, and a warm air conditioner with cooling attachment and necessary controls, has been installed by General Electric S.A., local subsidiary of General Electric Co., in the new chalet-style home of Gustavo A. Rappard, representative here for Fried-Krupp of Essen, Germany.

Mr. Rappard's chalet is designed to be the most up-to-date example of modern luxury housing in the city. The kitchen is equipped with four types of cooking equipment—an electric range, a gas range, a diesel fuel oil range, and a covered grill in which charcoal is burned.

A hood over the ranges is fitted with a small electric fan to exhaust cooking odors and heat. Refuse is discarded through a glassed tube leading to a receptacle in the basement.

Inch-thick corkboard insulates the large pantry so that the storage temperature will remain practically constant. The pantry also features a double all-metal sink. The double stainless steel sink in the kitchen is said to the first of its kind to be installed in South America.

Other modern features of the chalet include an electrically-controlled garden gate, a telephone connecting the gate entrance and pantry, an electrically-operated steel curtain in the garage, a small telescope mounted at the main entrance of the house proper, steel doors and windows with built-in burglar alarms, sprinkler system in the garden (said to be South America's first), special shortwave and long wave radio antenna outlets in various rooms, indirect lighting by tubular lamps in the entrance, dining room, and winter garden.

Floors in the kitchen, pantry, three bathrooms, basement, boiler room, and garage are of marble mosaic. Stairway to the second floor of the chalet is of French marble, and the fireplace is of Napoleon marble. Window sills are of French marble inside and white marble outside.

Jobber Activities

New England Jobbers Plan Meeting With Service Engineers

HARTFORD, Conn.—Plans for a spring convention with New England refrigeration service engineers were discussed by members of the New England Refrigeration Jobbers Association at their December meeting here.

A regional meeting of jobbers and service men, it was felt by those at the conclave, will be of considerable help to both groups. Mutual problems can be discussed and new developments in the parts field explained.

According to plans outlined at the meeting, the regional gathering would be held some time in late March or early April in Springfield, Mass. Parts manufacturers have been invited to exhibit at the meeting, using stock from their jobbers' warehouses in the immediate vicinity.

National Accessories Co., Springfield, Mass., joined the New England Jobbers Association at the December meeting.

It was suggested at the meeting that New England jobbers deserve commendation for their adherence to manufacturers' resale price schedules, since such procedure is vital to the successful operation of individual jobber companies.

Chester Borden, president of the association, reported that several sectional jobber groups are willing to cooperate in exchanging ideas and problems of mutual interest. The New England association hopes by this plan to foster better business operations throughout the jobber membership through the interchange of business experiences.

Continued interest is being expressed by New England jobbers in the approaching All-Industry Exhibition, reports Robert W. Shepherdson, secretary-treasurer of the organization.

John McKinley, Jobber In Ft. Worth, Is Dead

FORT WORTH, Tex.—John McKinley, founder and proprietor of McKinley Refrigeration Supply Co., local refrigeration parts and supply jobbing firm, died Dec. 22 as the result of a heart attack when he suffered Dec. 15 while in his office. He was 47 years old.

For seven years before he established his own business in July, 1936, Mr. McKinley was manager of the Dallas, Tex. branch of General Refrigeration Sales Co. He was a member of the American Society of Heating & Ventilating Engineers.

Mr. McKinley is survived by his wife, three brothers, a sister, and a son, C. B. McKinley, who is employed by General Refrigeration Sales Co.

Brass & Copper Sales Co. Has Christmas Party

ST. LOUIS—Some 200 guests attended the day-long Christmas party held Dec. 24 by Brass & Copper Sales Co., refrigeration supply jobber, in its office here.

Among manufacturers' representatives who actively helped in entertaining the guests were: R. B. Chapman, Revere Copper & Brass, Inc.; R. V. Schloss, Spoehrer-Lange Co.; J. W. Beneke, Tecumseh Products Co., Penn Electric Switch Co., Aerovox Corp.; D. A. Coon, Penn Electric Switch Co.; G. F. Roepke, Alco Valve Co.; E. H. Joern, Mueller Brass Co.; W. J. Bagley, Superior Valve & Fittings Co.

J. F. McKenna, Detroit Lubricator Co.; G. R. Postlewait, Kerotest Mfg. Co.; J. A. Wilkerson, Henry Valve Co., Dole Refrigerator Co., J. Moss Equipment Co.; H. F. Brockgreitens, Weksler Thermometer Corp., Electrimatic Corp.; H. Miller, Ansul Chemical Corp.; W. L. Kelly, Linde Air Products Co., Prest-O-Lite Co.; F. A. Rickley, American Radiator Co.

Many West Coast Jobbers Planning To Attend All-Industry Show

SAN FRANCISCO—California and the West Coast will be well represented at the First Annual All-Industry Refrigeration and Air Conditioning Exhibition at the Stevens hotel, Chicago, Jan. 16-19, reports Clarence F. (Sandy) Pratt, president of California Refrigerator Co. and a director of National Refrigeration Supply Jobbers' Association, which will hold its convention during the show.

The Pacific Coast Jobbers Association will meet also at the show in Chicago.

Most of the San Francisco delegation, Mr. Pratt reports, will leave for Chicago at 8 p.m. Jan. 12 on the Union Pacific's crack train, the "San Francisco Challenger." A second group will leave Los Angeles at the same time on the "Los Angeles Challenger."

The train will pick up the Sacramento delegation at 10:50 p.m., the Reno, Nev. delegation at 5 a.m. the next day, and the Utah crowd at Ogden at 6:05 p.m. Both sections will arrive in Chicago on Sunday, Jan. 15, at 8:45 a.m. Convention rates for the round trip from San Francisco are $74.

Entire delegation will be prepared to flood the conventions with Western Chamber of Commerce "facts," reports Mr. Pratt.

Oberc Celebrates 5th Year By Entertaining 200 At Open House

DETROIT—Celebrating its fifth year of existence as well as the Yuletide season, J. M. Oberc, Inc., local jobber of refrigeration and air-conditioning parts and supplies, held its fifth annual Christmas party on Dec. 23 in the company's quarters here.

More than 200 customers and friends of the company and of Joe Oberc dropped in to pass a word of congratulation and Christmas cheer and to consume their share of the customary refreshments.

Griffin Resigns Post With M.A.D.

NEW YORK CITY—W. A. Griffin has resigned his position with Melchior, Armstrong, Dessau Co., with which firm he had been associated for the past seven years, and has become eastern representative for a number of refrigeration manufacturers.

Mississippi Valley Group Plans Party

DAVENPORT, Iowa—Third annual banquet and entertainment of the Mississippi Valley chapter No. 1 of Refrigeration Service Engineers' Society will be held in the Blackhawk hotel here on Feb. 18, reports E. L. Bengston, secretary. The chapter will publish a souvenir booklet.

6,466 Commercial Refrigeration Systems Sold To Distributors In November By 14 Manufacturers

The following report of commercial refrigerating and air-conditioning equipment sales for November, 1938 was made to the Commercial Refrigeration Section of the National Electrical Manufacturers Association (Nema) by the following 14 companies:

Brunner Mfg. Co., Carrier Corp., Crosley Corp., Frigidaire Div. General Motors Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Div. Nash-Kelvinator Corp., Merchant & Evans Co., Norge Div. Borg-Warner Corp., Servel, Inc., Uniflow Mfg. Co., Universal Cooler Corp., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

SALES FOR NOVEMBER, 1938	Domestic Quantity	Domestic Value	Canadian Quantity	Canadian Value	Other Foreign Quantity	Other Foreign Value	Total World Quantity	Total World Value
1. Bottle Water Coolers—Complete	74	$ 4,822	3	$ 214	22	$ 1,470	99	$ 6,506
2. Pressure Water Coolers—Complete	418	44,068	10	1,027	186	19,490	614	64,585
3. Water Coolers—Low Side Only	59	2,260	....	....	2	115	61	2,375
4. Ice Cream Cabinets—Complete	466	74,363	8	857	45	6,480	519	81,700
5. Ice Cream Holding Cabinets Only (Remote)	57*	8,590*	1	107	10	1,394	68	10,091
6. Bottled Beverage Coolers—Complete	341	37,898	4	344	52	4,379	397	42,621
7. Beverage Coolers (No High Sides)	39	4,057	....	....	1	91	40	4,148
8. Milk Coolers—Complete	1	110	....	....	....	....	1	110
9. Milk Cooling Cabinets (No High Sides)	....	....	....	....	....	....	....	....
10. Self-Contained Air Conditioners Air Cooled—All Sizes	18*	3,861*	....	....	78*	16,106*	96	19,967
11. Self-Contained Air Conditioners Water Cooled—Under 2 Hp	1*	322*	....	....	....	....	1	322
12. Self-Contained Air Conditioners Water Cooled—2 Hp. and Up	11*	5,684*	1	600	7	3,920	19	10,204
13. Air Conditioners—Central Stations 5-Ton Capacity and Over	38	16,815	....	....	1	443	39	17,258
14. Air Conditioners—Floor Type (No High Sides)	66	18,589	....	....	7	2,351	73	20,940
15. Air Conditioners—Ceiling (Cooling Only—No High Sides)	56*	6,725*	2	230	14	2,028	72	8,983
16. Air Conditioners—Ceiling Type (Equipped for Heating—No High Sides)	16	7,613	....	....	4	2,240	20	9,853
17. Air Conditioners—Residential Type (No High Sides, Boilers, or Furnaces)	38	8,515	....	....	1	225	39	8,740
18. Condensing Units Less Than ⅓ Hp	665*	32,898*	9	574	190	11,608	864	45,080
19. Condensing Units—⅓ Hp	1,334	80,260	29	2,644	349	28,186	1,712	111,090
20. Condensing Units—½ Hp	636	62,913	18	2,265	118	13,703	772	78,881
21. Condensing Units—¾ Hp	386	50,772	13	1,999	87	12,230	486	65,001
22. Condensing Units—1 Hp	272	41,664	7	1,362	59	10,839	338	53,865
23. Condensing Units—1½ Hp	140	28,336	9	2,124	45	9,029	194	39,489
24. Condensing Units—2 Hp	106	25,554	6	1,733	12	2,906	124	30,193
25. Condensing Units—3 Hp	61	14,879	1	236	53	12,626	105	27,741
26. Condensing Units—5 Hp	37	15,353	....	....	3	864	40	16,217
27. Condensing Units—7½ Hp	14	9,108	1	674	9	4,845	24	14,627
28. Condensing Units—10 Hp	8	6,221*	....	....	3	2,487	11	8,708
29. Condensing Units—15 Hp	13	12,073	....	....	1	860	14	12,933
30. Condensing Units—20 Hp	17	19,240	....	....	3	3,667	20	22,907
31. Condensing Units—25 Hp	5	5,920	....	....	....	....	5	5,920
32. Condensing Units—30 Hp	3	3,630	1	1,700	....	....	4	5,330
33. Condensing Units—40 Hp	2	6,379	....	....	3	4,710	5	11,089
34. Condensing Units—50 Hp	2	4,627	....	....	....	....	2	4,627
35. Total—Lines 18 to 34 Inclusive	3,691	419,827	94	15,311	935	118,560	4,720	553,698
36. Total—Lines 1, 2, 4, 6, 8, 10, 11, 12, 35	5,021	....	120	....	1,325	....	6,466	....
37. Commercial Evaporators (Not Reported Above)	1,322*	47,825*	168	4,979	375	12,978	1,865	65,782
38. Air-Conditioning Evaporators (Not Reported Above)	131	20,262	....	....	2	342	133	20,604
39. Total Commercial & Air Conditioning	....	$732,206	....	$23,669	....	$192,612	....	$948,487

*Includes sales and credits.

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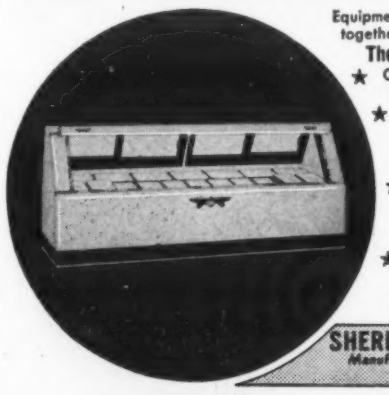

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PAYMENT in advance is required for advertising in this column.

POSITIONS AVAILABLE

SALESMEN WANTED by refrigerator manufacturer. Men selected must qualify as field representatives to call on distributors and direct factory dealers. Exceptional opportunity for advancement and permanent connection for energetic producers. Replies confidentially treated if you desire. Box 1102, Air Conditioning & Refrigeration News.

LARGE COMMERCIAL refrigerator distributor in Chicago wants man with experience in purchasing products necessary on grocery store, meat market, and delicatessen installations. Also familiar with handling salesmen's commission accounts. Prefer man not over 35 years of age. Unusual opportunity. Box 1103, Air Conditioning & Refrigeration News.

MANUFACTURER of refrigerator display cases in the Pittsburgh area desires to fill position of sales manager. Sales are made through dealer organizations operating in Maryland, Pennsylvania, Ohio and West Virginia. Person must be capable of assisting dealers in closing sales. Give details, experience, contacts and remuneration expected. Box 1105, Air Conditioning & Refrigeration News.

WANTED: Assistant Chief Engineer by large, well-known middlewestern refrigeration company. Give complete details of experience past three years and general outline total experience, present connection, salary expected, when available, etc., in your reply. All replies will be treated in strict confidence. Box 1107, Air Conditioning & Refrigeration News.

REPRESENTATIVES WANTED

MANUFACTURER'S REPRESENTATIVE wanted with commercial refrigeration experience to cover western Pennsylvania, Ohio, and Indiana, to contact dealers and distributors. Representative will have largest and most complete line of milk cooling equipment manufactured; also, cold storage rooms, ice makers, et cetera. Address all inquiries to WILSON CABINET CORPORATION, Smyrna, Delaware.

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EXECUTIVE SALES position. Employed but desire change. Eleven years' experience merchandising major and small appliances in northwest, southwest and central west. Married, 40, college graduate. Capable of contacting distributors and dealers. Sales education and promotion experience. Can furnish bond. Full record including references and accomplishments to interested manufacturer or distributor. Box 1104, Air Conditioning & Refrigeration News.

AVAILABLE, All-Around refrigeration and air conditioning engineer. Fifteen years' experience. Owned own business. Qualified to represent manufacturer or distributor. Experienced as field sales and service supervisor, contacting distributors, installation, estimating. Have traveled extensively. Married, age 37, graduate engineering school, Christian. Good connections New York State and vicinity. Box 1106, Air Conditioning & Refrigeration News.

COUNTER MAN, storekeeper, order clerk with wealth of experience handling refrigeration parts and supplies desires new position with progressive manufacturer or parts jobber in East or Southeast. Good typist, experienced in usual routine of order department, storeroom, shipping, office details, etc. Middle aged, married. Box 1108, Air Conditioning & Refrigeration News.

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Show Gets Exhibits From Wide Area

(Concluded from Page 1, Column 4)

exhibitors who will occupy a total of 138 booths at the show.

Illinois leads the list with 38 exhibitor representatives, Michigan following with 15, New York with nine, and Ohio with eight.

Final plans for the meeting of Midwestern sections of American Society of Refrigerating Engineers, to be held in the Stevens on the afternoon of Jan. 16, have been announced by Deane E. Perham, chairman of the Chicago section, which is sponsoring the meeting.

Headquarters for the meeting will be in the west ballroom on the hotel's third floor. Chief speaker will be Gardner Poole, national president of A.S.R.E., who also will address the All-Industry Banquet the same night. Following Mr. Poole's talk, comments will be made by representatives of the various sections present.

In addition to Chicago, these will include members of the society from Detroit, Milwaukee, and St. Louis.

Notices, reservation cards, and cocktail hour tickets will be distributed through individual section chairmen and secretaries, one to each member. All members planning to attend the event are asked to send in their reservation cards early, so that the Chicago committee may make necessary advance plans regarding the meeting.

Dry-Zero Introduces A New Insulation

(Concluded from Page 1, Column 5)

is said to be so easy to handle that pieces can be cut on the job from a bulk roll with shears or knife.

The new product has a coefficient of conductivity of .239, according to tests made by Dr. J. C. Peebles at Armour Institute of Technology, Chicago. It possesses the moisture-repellent characteristics and insulating effectiveness of other Dry-Zero materials, despite the fact that it is less expensive.

Its lower cost, Mr. Lindsay declares, is due to the improved design and manufacturing technique evolved during the two years that the product was in the process of development. Bound-Batt already is being used to insulate the 1939 cabinets of two major household refrigerator manufacturers, he says.

To facilitate handling, this insulation is customarily covered on one or both sides with specially manufactured asphalt-coated kraft paper, but edges are not bound. The material is said to be sturdy and stiff enough for high-speed production line handling but flexible enough to fit around structural members and protuberances. It is being manufactured in thicknesses of 1, 1½, 2, 2½, 3, 3½, and 4 inches, and in widths up to 36 inches.

Basic difference between Bound-Batt and other Dry-Zero products is that the fibers composing the Bound-Batt are held together by a microscopically fine binder so that no external covering is necessary. This binder is introduced as a mist carried by the air currents used in the processing.

Because the binder is so finely atomized, the fibers are joined together only at microscopic points of contact and there is no increase in the heat conductivity of the material. Less than five-hundredths of a pound of binder is used per cubic foot of Bound-Batt.

Burstein-Applebee Gives Up Refrigeration Line

(Concluded from Page 1, Column 3)

continuation of Burstein-Applebee Co. as a major distributor of radio sets, parts, and allied merchandise on a nation-wide basis, Mr. Applebee says.

Growth of the company's business in these lines necessitated its undivided attention to them in the future, he states. Since it was impossible to combine the merchandising of refrigeration supplies in the same scope as the company's activities in radio cover, it was decided to abandon this department of the organization.

Alco Co. Founder Dead

J. L. SHRODE

* * *

Shrode Long Active In Industry Affairs

(Concluded from Page 1, Column 3)

ciety of Refrigerating Engineers, and is well remembered in the society for his efforts in making the 1937 spring meeting at French Lick, Ind. a successful one.

Mr. Shrode was a real refrigeration industry veteran and pioneer. Some 20 years ago he was engaged in the business of installing power and ice plants. The story is told that he saw an advertisement in the Saturday Evening Post of the pioneer Isko household electric refrigerator, and decided the new industry was what he had been looking for.

He made a connection with the Isko company as district sales manager for the southwestern part of the country. After two years with Isko he left to become district sales manager for the Lipman Refrigerator Car & Mfg. Co. of Beloit, Wis., organized at the time to distribute small automatic refrigeration machines throughout the entire country.

In his spare moments Mr. Shrode began to look into the matter of expansion valves, seeking to obtain a valve which would prevent expansion taking place in the valve body.

In 1924 he invented and patented an automatic constant pressure-type expansion valve. In 1925 after the patent was issued Mr. Shrode formed the Alco Valve Co., which was incorporated in September, 1927.

His company had a continuous success and growth, now employing some 200 persons in its plant in St. Louis, and having sales agents in all principal cities for the wide line of valves which it manufactures.

A. B. Schellenberg, vice president and general manager of the Alco Valve Co., announced that the entire factory would be closed Tuesday, Jan. 3, in deference to Mr. Shrode, and that normal company operations would be resumed the following day.

Dealership Changed

SUMTER, S. C.—Holman Appliance Co. has taken over the stock and premises of Holman's, Inc., at 36 North Main St. here. The firm handles Frigidaire refrigerators, and other electrical appliances.

Bridgeport Field Men To Meet At Factory

BRIDGEPORT, Conn. — Company representatives of the Bridgeport Brass Co. will be called to Bridgeport on Jan. 9 from 21 branch offices throughout the United States for the first national convention to be held by the company in its 73-year history, announces Herman W. Steinkraus, vice president in charge of sales.

Past practice of holding sectional conferences will be discarded in favor of the national convention which will allow all the representatives to visit and get first-hand information about the company's new and improved manufacturing plants, Mr. Steinkraus said.

Among new developments are a recently completed $4,500,000 rolling mill, said to employ for the first time in the non-ferrous metal industry the straight-line production principle of materials handling, and modernized and expanded pipe and tube mills.

Day and night sessions with emphasis on plant visitation and round-table discussion will continue to Saturday, Jan. 14.

Wiswell Handles Bendix

CHICAGO—L. C. Wiswell Co., Leonard refrigerator distributor here, has been named distributor of Bendix home laundry equipment, succeeding the Harry Alter Co., which recently announced discontinuance of its major appliance distributing division.

Wiswell for several years has been distributor for Easy washers.

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